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# Performance of Microfinance Investment Funds

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I dedicate this dissertation to all the individuals from developing countries who need financial support to create something valuable for their communities. I hope this paper will provide valuable insights to investors willing to invest in microfinance, thereby contributing to the empowerment of those who need it most.

## Abstract

This dissertation examines the performance of MFIFs in terms of portfolio diversification and their attractiveness to investors. These funds are the main providers of financial services to MFIs. To assess the resilience of the funds to economic uncertainty, the historical performance per annum of microfinance investment funds is analyzed from 2015 to 2023, including the COVID-19 pandemic period. The data consists of 130 funds, which are either fixed-income funds or mixed-allocation funds. All of them are open-end funds. This study employs the CAPM regression to assess if microfinance investment funds contribute to the investor's portfolio diversification, using risk-adjusted performance measures like Sharpe ratio, Jensen's alpha, and Treynor ratio and risk measures like the beta coefficient, the standard deviation of returns, and $R^2$. Moreover, a matched pair analysis compares the performance of microfinance investment funds with other socially responsible funds in terms of risk and return.

The analysis revealed that microfinance investment funds offer valuable diversification benefits to investors. The findings of this dissertation are in line with the previous research. Close to zero beta indicates a low correlation with benchmark indices and lower volatility compared to the developed and developing markets. This may suggest potential diversification benefits of the MFIFs. Positive Jensen's alpha, for many funds, indicates the outperformance of these funds, while negative alphas may be due to their focus on social impact rather than poor financial performance. The Sharpe ratio of individual funds varies significantly; the majority of the funds have positive Sharpe ratios. However, in which fund to invest should be evaluated with cautios by potential investors. The portfolios' Sharpe ratio showed that investing in microfinance funds does not worsen the risk-adjusted returns of the investors; in fact, it could be beneficial.

Matched pair analysis confirmed that MFIFs provide better diversification benefits than SRIs. As a result, SRIs have a higher market correlation. MFIFs have better risk-adjusted returns. Furthermore, the performance analyses per annum showed that MFIFs had a stable performance during COVID-19 and were resilient during market shakes compared to their benchmark indexes.

Keywords: microfinance investment funds, socially responsible investment funds, financial performance, diversification, CAPM, risk, return.

## Sumário

Esta dissertação examina o desempenho dos MFIFs em termos de diversificação de carteiras e a sua atratividade para os investidores. Estes fundos são os principais prestadores de serviços financeiros às IMFs. Para avaliar a resiliência dos fundos à incerteza económica, é analisado o desempenho histórico anual dos fundos de investimento em microfinanças de 2015 a 2023, incluindo o período de pandemia da COVID-19. Os dados consistem em 130 fundos, que são fundos de rendimento fixo ou fundos de alocação mista. Todos eles são fundos abertos. Este estudo emprega a regressão CAPM para avaliar se os fundos de investimento em microfinanças contribuem para a diversificação da carteira do investidor, usando medidas de desempenho ajustadas ao risco como o índice de Sharpe, o alfa de Jensen e o índice de Treynor e medidas de risco como o coeficiente beta, o desvio padrão dos retornos e R2. Além disso, uma análise de pares combinados compara o desempenho dos fundos de investimento em microfinanças com outros fundos socialmente responsáveis em termos de risco e retorno.

A análise revelou que os fundos de investimento em microfinanciamento oferecem benefícios valiosos de diversificação aos investidores. Os resultados desta dissertação estão em linha com a pesquisa anterior. Um beta próximo de zero indica uma baixa correlação com índices de referência e menor volatilidade em comparação com os mercados desenvolvidos e em desenvolvimento. Isto pode sugerir potenciais benefícios de diversificação dos MFIFs. O alfa de Jensen positivo, para muitos fundos, indica o desempenho superior destes fundos, enquanto os alfas negativos podem dever-se ao seu foco no impacto social e não ao fraco desempenho financeiro. O índice de Sharpe de fundos individuais varia significativamente; a maioria dos fundos apresenta índices de Sharpe positivos. No entanto, em que fundo investir deve ser avaliado com cautela pelos potenciais investidores. O rácio de Sharpe das carteiras mostrou que o investimento em fundos de microfinanças não piora os retornos ajustados ao risco dos investidores; na verdade, pode ser benéfico.

A análise de pares combinados confirmou que os MFIF proporcionam melhores benefícios de diversificação do que os SRI. Como resultado, os SRIs têm uma correlação de mercado mais elevada. Os MFIF apresentam melhores retornos ajustados ao risco. Além disso, as análises de desempenho anuais mostraram que os MFIF tiveram um desempenho estável durante a COVID-19 e foram resilientes durante as oscilações do mercado, em comparação com os seus índices de referência.

Palavras-chave: fundos de investimento em microfinanças, fundos de investimento socialmente responsáveis, desempenho financeiro, diversificação, CAPM, risco, retorno.

## List of Abbreviations

CAPM – Capital asset pricing model

ESG – Environmental, social, and governance

GSIA – Global Sustainable Investment Alliance

ISIN – International securities identification number

MFI – Microfinance institution

MFIF – Microfinance investment fund

MPT – Modern Portfolio Theory

NAV – Net asset value

SICAV – Société d'investissement á capital variable

SRI – Socially responsible investment

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# 1. Introduction

Microfinance investments have been accessible to investors to achieve risk-adjusted financial returns and positive impact on emerging markets for more than twenty years *(BlueOrchard Finance, 2023)*. Microfinance institutions provide financial services such as credit, savings, insurance, money transfers, and other basic financial products to poor borrowers to earn a living for themself, mainly in developing countries. Alongside financial services, Microfinance Institutions provide non-financial services, which include development support services, such as technical training, knowledge training in business and management, and social services *(Le Saout, 2017)*.

The Microfinance Investment fund's main objective is to invest in the equity and debt of these microfinance institutions and receive financial returns from interest and fees. Together with financial, these funds also provide a social impact. This is due to the fact that microfinance institutions' main target group is financially excluded, unbanked individuals. With the help of microfinance, these individuals get access to financial markets and, in the long run, become self-sufficient rather than aid-dependent *(Brandt and Necksten, 2016)*. The microfinance services are mostly small loans, which are known as microcredit *(MicroRate, Luminis, Power of Clarity, 2012)*. It is crucial that these loans be given to the micro-entrepreneurs for productive purposes, which will provide them with adequate income and allow them to repay the loans. It is notable that traditional banking services are not available for the lower segment of the market, and the reason behind this is cost and efficiency. On the contrary, microfinance institutions have recognized these emerging markets as burgeoning, and their aim became to fulfill unbanked individuals' capital and financial needs.

Moreover, Microfinance Investment Funds provide technical support to the beneficiary microfinance institutions and share all the necessary experience and achievements in the field *(EIB, 2010)*. As for the investor, the funds provide diversification benefits if included in a portfolio with developed market holdings *(Janda and Svárovská, 2014)*.

## 1.1. Purpose and Relevance

Financial inclusion matters and contributes to developing countries' economic improvement. Microfinance has successfully encouraged financial inclusion and reduced poverty in emerging and frontier markets. However, despite progress being made, according to the World Bank, 1.4 billion adults remain unbanked globally. These are mostly women, less educated individuals, the majority of whom are living in rural areas *(World Bank, 2022)*. In addition to this, micro, small, and medium enterprises are responsible for creating approximately 70% to 85% of total employment in emerging markets. As MSMEs are the main users of MFI services, this issue is even more important *(OECD, 2022)*.

The purpose of my research paper is to investigate microfinance investment funds, their performance as investments, and why these funds may be attractive to investors. From the perspective of microfinance institutions, they need funding. These funding needs can be satisfied by microfinance investment funds as they provide capital for microfinance institutions. On the other hand, these investment funds depend on their performance toward investors *(Janda and Svárovská, 2014)*.

Microfinance is a rapidly growing sector. Developing countries and their underserved population are seeking accessible financial services. Microfinance is growing, so it can meet the demand. Moreover, microfinance investments offer investors portfolio diversification and enhancement, as some studies have proved that these investments show low correlation and stable returns and provide social benefits to the end borrowers *(MicroRate, 2015)*.

Nowadays, social responsibility is crucial for companies. As is the case with microfinance investment funds, social and financial returns are important elements for investors' decision-making. So, in this dissertation, I will try to identify if investing in Microfinance Investment Funds is good for portfolio diversification for investors.

The relevance of this topic is outlined due to the importance of finding an asset class that is resilient to different market disruptions, such as the COVID-19 pandemic. It seems that microfinance investments demonstrated resilience towards these shakes and are a good addition to portfolio diversification *(BlueOrchard Finance, 2023)*. However, this topic needs to be studied.

### 1.2. Research Questions

Evaluating the financial performance of microfinance investment funds is crucial as they are a source of funding for MFIs and have a social impact. This dissertation's main aim is to prove that these funds are excellent contributors to portfolio diversification as a specific asset class for investors who are looking for risk-adjusted return and social contribution at the same time. Furthermore, the observation period for my research is from 2015 to 2023 years, which includes the COVID-19 pandemic; studying the impact of a pandemic on the performance of these funds is essential. I identified how resilient the funds were under severe macroeconomic conditions and whether they performed well or not. So, I conduct a stand-alone analysis of microfinance investment funds and also a portfolio analysis according to their trading currency.

To strengthen my study and be more precise, I also test how the performance of microfinance investment funds compares with other socially responsible funds in terms of risk and return. For this, I conduct a pairwise comparison of these funds to other socially responsible funds. This comparison is beneficial because these funds have similar characteristics and objectives and supposed similar diversification benefits. The research questions for this dissertation are the following:

1. Can Microfinance Investment funds contribute to efficient portfolio diversification?

2. Did the COVID-19 pandemic have a positive/negative impact on the performance of microfinance investment funds?

3. Have Microfinance Investment Funds better or the same performance compared to other Socially Responsible Investment Funds in terms of risk and return?

## 1.3. COVID-19 Pandemic and Microfinance Sector

There have been several downturns which had a negative impact on the microfinance sector. However, the COVID-19 pandemic spread quickly across the globe and had severe impacts on society and economies. It had a more devastating effect on emerging economies and developing countries as they lacked the resources and capacity to cope with such crises.

All microfinance institutions and their clients have experienced disruptions due to the COVID-19 pandemic. The effect, however, was different depending on a country, region, demographics, profile, or size. According to the World Bank (2022), global poverty and inequality increased during this period. As the role of microfinance is to provide financial resources to the underprivileged population, also referred to as the bottom of the pyramid population, the pressure on this industry increased. The behavior of each part of the microfinance chain during this crisis is vital. COVID-19 proved that digitalization had great potential to overcome problems such as delivering essential services and social assistance to individuals. The biggest growth in the use of digital has been captured during a pandemic. As the Global Index Database Report 2021 states, during this period, financial inclusion has increased around the world; 71% of the population in developing countries have a financial account, and the gender gap in the ownership of this account has decreased during this period for the first time. However, even with the progress achieved, financially inexperienced people may not be able to benefit from holding financial accounts. In this case, the role of the microfinance sector increases as their main motive is social, and they should provide technical support to this kind of individual.

## 2. About Microfinance

It is noteworthy that very few studies have been conducted yet on microfinance investment funds, especially during the last few years. To understand the role and impact of microfinance investment funds, we first need to look at the microfinance investment chain, as microfinance investment funds are seen as the main providers of funding to MFIs *(figure 1.).* Microfinance institutions channel this funding to micro-entrepreneurs with small loans in developing countries *(Goodman, 2005).* In return, micro-entrepreneurs pay back principal and interest to MFIs. Part of this interest covers funding expenses borrowed by MFIs from microfinance investment funds, and finally, this interest is passed on to investors *(MicroRate, Luminis, Power of Clarity, 2012).*

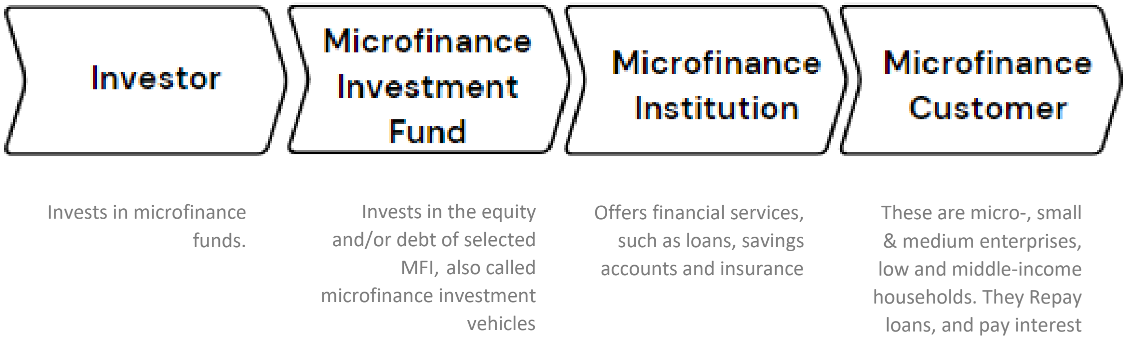
Policymakers in the financial sector make reforms to promote financial inclusion, as it is an integral part of the UN SDGs[1]. To achieve the first goal of this initiative, No Poverty (SDG 1) is only possible if there is accessibility of financial services for poor individuals, as expressed by the CGAP publication. Nowadays, more and more institutional and private investors are becoming worried about their portfolio diversification, and their interest is also growing in providing a positive impact on society. They started understanding their responsibility and how to allocate their capital. Therefore, these investors are signing up to sustainable finance initiatives *(Symbiotics, CGAP, 2016*). So, microfinance funds are specialized in providing this kind of investment, as they are channels for foreign private institutional investors and DFIs who are willing to invest in emerging markets. According to the Symbiotics MIV survey, in 2018, funding sources provided by private institutional investors accounted for 59% of the total investors *(Symbiotics MIV Survey 2019).*

However, it should be mentioned that there are still some specialized investors who directly invest in microfinance institutions. Nevertheless, the more convenient way to invest in this sector is still considered to be through the microfinance investment chain *(figure 1.).* This is due to the fact that the infrastructure in this sector is not still as developed as in traditional investment markets. In response to this issue, Microfinance investment vehicles took responsibility for themselves and created an entire investment value chain. The three

1 Preceded by the sustainable development agenda of 1992 (the "Agenda 21") and the Millennium Development Goals of 2015 (in 2000).

main investment value chain functions can be identified: information, credit risk, and pipeline management functions *(Symbiotics, CGAP, 2016*). Moreover, another advantage of investing in MIVs rather than directly in microfinance institutions is the possibility of diversification of risks between institutions and countries *(Goodman, 2005).*

**Figure 1.** Microfinance Investment Chain.
Based on MicroRate (2015).




Microfinance investments can be expressed as the provision of capital for microfinance institutions. In most cases, microfinance investment funds[2], also called microfinance investment vehicles, purchase shares of microfinance institutions so they can have exposure to the sector *(Dominice, Symbiotics, 2012).* They also provide debt obligations for MFIs. Microfinance Investment Vehicles (MVIs) are independent investment entities specialized in financing microfinance institution funds. Microfinance investment vehicles can be divided into three categories:

- Fixed-income MIVs (more than 85% of debt instruments),
- Equity MIVs (more than 65% of equity instruments),
- Mixed MIVs (15 to 65% of equity instruments).

According to Luminis Microfinance, a fund should fulfill three criteria to be classified as MVI. First, a microfinance investment vehicle should be an independent legal entity with the purpose of raising and investing funds. Second, several private investors should invest or

[2] The term *Microfinance Investment Fund* is often commonly used instead of *Microfinance Investment Vehicle*, even though from the legal perspective, many of these entities do not fit in the traditional definition of the term as it is widely understood in financial markets (e.g. mutual funds) (Svárovská, 2009). MIVs can be separated into investment funds and structured products (Hechler-Fayd'herbe, Lüscher, 2008). Since my focus is on the investment funds only, I shall use the terms MIVs and MFIFs interchangeably if not specified otherwise.

the fund must be open to such investors. And third, the microfinance investment vehicle must be oriented toward investing in microfinance.

The origins of microfinance started in the 1970s, which makes it relatively young compared to other financial institutions. It started with the idea of Muhammad Yunus, an economics professor in Bangladesh, who made small loans to the inhabitants of the villages in 1976. It was an experimental trial; however, it gained popularity and expanded much larger in a very short period. Later, he institutionalized this idea and founded Grameen Bank in Bangladesh in 1976 *(Thai-Ha, ADB, 2021).* A similar story happened in another part of the world. Also, in the 1970s, ACCION started a micro-lending program in urban Latin America. Not so late, from 1980 to 1990, ACCION International developed microcredit programs in 14 Latin American and Caribbean countries *(ACCION, online history).*

The primary objective of newly established microfinance institutions was social, helping the poor population by giving access to microcredit. This was achievable with the help of grants and donations provided to these institutions. Although, as the size and scope increased, the market also diversified as more creditworthy MFIs emerged, many of them transformed into for-profit organizations that were providing credits to the customer independent from the donor funding *(MicroRate, Luminis, Power of Clarity, 2012).* As a result, today, the microfinance sector is partially commercialized. This is due to the need for external sources so they can continue their operations. This funding is mostly provided by private capital placements and by debt financing. This transformation is explained by the necessity of attracting foreign investors for funding *(Janda and Svárovská, 2009).* To get the funding, MFIs should go through comprehensive long due diligences so the investor can check their applicability to the funding, mainly solvency, and profitability.

## 3. Overview of Microfinance Investment Funds

The history of microfinance investment vehicles started in the mid to late 1990s when the first funds emerged with the purpose of investing in MFIs. The foundation of this kind of funds actively took place after that, reaching its peak in 2005-2010. This tendency was inspired by the fact that the Nobel Prize was awarded to Muhamed Yunus and Grameen Bank in Bangladesh in 2006, which brought a spotlight to this sector.

According to Symbiotics survey (2019), the record number - 121 MVIs[3] were identified on the market as of 2018. The microfinance fund market had USD 16.9 billion of total assets under management as of December 31st, 2018. As this survey states, MIV investments continue to grow in Latin America & the Caribbean, which makes it the largest region to invest in terms of a direct microfinance portfolio. The majority of MIVs in this survey were fixed-income funds.

### 3.1. Structure of MFIFs

The structure and form of MIV have changed over time. In terms of fund objectives, Goodman (2005) classifies three types of microfinance funds:

(1) Commercial Microfinance Investment Funds – which are targeted towards private and institutional investors. They mainly provide loans under market conditions and seek financial returns. These funds target financially sustainable MFIs and invest mainly in debt instruments.
(2) Quasi-Commercially oriented Microfinance Investment Funds - have outlined financial objectives. However, they also have development and social objectives. Their target group may include microfinance institutions that are aiming to become sustainable. They are mostly focused on equity and are not open to new investors.
(3) Microfinance Development funds - their motivation is to make capital available to microfinance institutions through sustainable mechanisms to support their development and their growth without necessarily seeking a financial return.

[3] MIV Survey has maintained a high participation rate in an expanding market: out of the 121 MIVs identified, 87 funds participated and were included in the final benchmark *(Symbiotics MIV Survey 2019).*

To assess the financial performance of the funds, it is necessary to distinguish between these three categories, as, for example, development funds are not expected to have the same financial return as commercially oriented funds. My paper is oriented on commercial microfinance investment funds that focus mainly on financial objectives, while their social and development contribution is a sort of added value that sets these funds apart from traditional mutual funds *(Goodman, 2005)*.

The composition of MIVs is often complicated, which creates additional difficulties for researchers. The majority of the funds are private placement funds (*(Le Saout, 2017)*. It is important to distinguish between *public and private investment funds*. The main difference between them is fundraising strategy. Private placement funds raise money from qualified investors; these are mainly institutional investors, such as pension funds, insurance companies, and banks, and are not approved by regulators to sell to the general public. They often require several million dollars as a minimum investment so they can maintain a low operating cost ratio. Public placement funds are regulated by local financial authorities; they should go through a rough process to be permitted to sell to the general public *(De Sousa-Shields, 2007)*. These funds are open to a larger base of potential investors who can invest in funds below USD 25,000 *(Symbiotics, CGAP, 2016)*.

Nevertheless, mutual funds with one investment portfolio may offer more than one share class. Each of them can have its own fee structure and charge, expense ratio, and different financial performance, but the same objectives. This is favorable for investors as they can choose according to their preferences. According to the CGAP guidelines, funds have two types of yield distribution: *capitalization and periodic distribution*. When an investor chooses to invest in the capitalization share class, he/she agrees to capitalize the return and, therefore, increase the fund's asset value, while during periodic distribution, the dividend is paid periodically. In this research, both types of asset classes are included.

### 3.2. Financial Performance Measurement of MFIFs

Calculating performance indicators in microfinance is complicated as it is not standardized. Traditionally, mutual funds are valued with net asset value (NAV), which is the subtraction of liabilities from assets divided by the number of shares outstanding. It represents value per share and is the price that the investor pays for this share; also, when redeeming the share, this price is paid to the investor *(Janda and Svárovská, 2009)*. For research purposes, I use monthly NAVs per share.

As the information on NAVs of the funds is available only for the open-end microfinance investment funds, my study solely includes open-end funds[4]. The supply and demand of the shares of the funds have no influence on the price paid by the investor. If the fund is in need of more capital, then it can issue new shares. This will have an influence on the assets, so the assets will increase and, therefore, the NAV will increase by the same amount. In this case, existing investors will not be affected. It is also crucial that the NAV price is always adjusted every time new shares are sold. So, the movement of the NAV per share reflects the performance of the fund accordingly *(Meyer, 2013)*.

### 3.3. Literature Review on MFIFs

This dissertation evaluates microfinance investment funds by incorporating them into a portfolio to reduce volatility. There are few research papers and studies on the performance of microfinance investment funds due to the young age of this category, as most researches are mainly focused on microfinance institutions. One of these studies was conducted by Brandt & Nacksten (2016). The authors conducted a quantitative study of the financial performance of 83 funds from 1998 to 2015. This was based on the studies conducted by Janda and Svárovská (2010, 2014). It should be noted that my research is mainly based on the study papers by Janda and Svárovská and is oriented to upgrade the study according to a more recent time period. It is interesting to know, in particular, if the results are still valid under the influence of the COVID-19 pandemic, especially given the significant economic consequences of the ensuing crisis that was likely to have a major impact on the economic and financial situation of the users of micro-loans *(Brodeur et al. 2021)*. The authors of this study, Brandt & Nacksten (2016), used unbalanced panel data consisting of 83 mutual funds for almost twenty years. They conducted a portfolio performance analysis, which employed several metrics, such as CAPM and Jensen's Alpha, to test whether microfinance investment funds are correlated with developed markets and if they contribute to portfolio diversification for investors. In this paper, the performance of

[4] Close-ended Funds offers a specific number of shares or a fund size on a specified closing date. Shares may not be redeemed before the fund's maturity or liquidation date unless they are sold in the secondary market *(CGAP, 2010)*.

microfinance investment funds is compared to that of other socially responsible mutual funds, and for the comparison, they used the matched pair technique. The results, which turned out to be in line with previous research, conclude that including microfinance investment funds in the portfolio of developed market assets does offer diversification. Additionally, these funds did not show worse performance than other socially responsible investments.

The paper of Janda and Svárovská (2010) also explores the performance of 11 microfinance investment funds. They found that investigated funds exhibit lower total risk compared to global stock and bonds, as measured by four benchmark indices. The returns were uncorrelated with a negative beta coefficient to the benchmark indices. This study revealed that studied funds were attractive not only to socially responsible investors but also to those seeking diversification benefits. However, this research had limitations as it was conducted over a very short period with a very small amount of funds included.

In a subsequent study, Janda, Rausser, and Svárovská (2014) included 21 selected open-end microfinance investment funds from January 2006 to September 2010. Fifteen funds were denominated in euros, and the remaining six were USD-denominated funds. They used an unbalanced panel method to solve the problem related to the short data period. Concerning methodology, they used all the relevant indicators for portfolio evaluation, starting from estimating beta, R-squared coefficient, Jensen's Alpha, etc. Additionally, they did a mean-variance spanning test to determine if adding microfinance investment funds to a benchmark portfolio could result in a lower risk and higher return. They observed that returns were uncorrelated with the negative beta to the market portfolio.

The paper of Galema, Lensink, and Spierdijk (2008) explored the potential benefit of adding microfinance funds to a portfolio of risky international assets, such as equity and bond investment. Their analysis also used a mean-variance spanning test, assuming that investors base their decisions only on the mean-variance properties of assets. Authors suggested that microfinance may be attractive for investors who were looking for a better risk-return profile. More precisely, microfinance investment could be valuable as an addition to the debt portion of a globally diversified portfolio. As they found out, investing in MFIs from Latin America led to the most efficient portfolios, as indicated from the regional perspective.

Backer (2010), in his study about Investing in Microfinance, implements a qualitative forward-looking approach and investigates challenges related to generating forward-looking input estimates for portfolio optimization in asset allocation. He argues that quantitative models give information on historical data and are based on backward-looking indicators. To overcome this limitation, he introduces scenario methodology as an analysis tool for asset allocation input parameter estimation. This study includes a theoretical framework and quantitative assessment for microfinance investment. The finding of this research suggests that the qualitative approach improves the attractiveness of microfinance debt investment for risk-averse private investors. Meanwhile, quantitatively generated input parameters tend to lead to the incorporation of portfolios with excessive microfinance debt exposure. The study develops recommendations for microfinance investments created for various types of investors.

In addition to the academic research papers, one of the microfinance investment funds – BlueOrchard Finance Ltd (2023), conducted research on the impact of the COVID-19 pandemic on portfolio diversification, which included microfinance investment fund's assets class, based on their financial performance. For this, BlueOrchard did simulations to determine the effect of reducing fixed-income components in favor of microfinance exposure. The period covered January 2004 to December 2022. The results showed that the risk was reduced significantly while maintaining returns in fixed income-heavy strategies such as, for example, "Fixed Income."

The novelty of this topic is an issue; this direction requires more in-depth investigation. This is especially due to the fact that up-to-date information, research, and surveys are not available. My study contributes to this by expanding previous studies, adding more time spans, and including important macroeconomic crises, such as COVID-19. I will attempt to bring as much new information on this field as possible.

## 4. Overview of Socially Responsible Investments

Socially responsible investments, also known as sustainable investments or ethical investments, are the terminology used to express investment strategies that are generating financial returns, but their main intention is long-term environmental, social, and governance (ESG) direction as defined by Global Sustainable Investment Alliance (GSIA). In this section, I introduce SRIs, as my aim is to compare microfinance investment funds to other socially responsible investments to provide a complete picture of the main research idea of this paper.

This type of investment strategy has gained popularity over the past two decades and has grown rapidly. However, the history of this type of investment originates centuries ago, when, for example, for religious or ethical reasons, some investors were rejecting to invest in companies that were oriented on financial results or had unfair labor approaches *(Meyer, 2013)*. For instance, in the seventeenth century, Quakers were prohibited from investing in slavery and war, tobacco, gambling, or alcohol; these were considered "sin stocks". The importance of socially responsible investments increased in the 1960s during the Vietnam War when students and young people were protesting against providing weapons used in the war and forced institutional investors to sell shares of napalm-producing Dow Chemical. From the beginning of the 1990s, the SRI industry expanded and diversified, so positive screening strategies started to influence mainstream investments *(Martini, 2021)*. In 1995, the US Sustainable Investment Forum started to measure sustainable investing assets in the United States, which turned out to be a big step, and the industry value was equal to a multi-trillion dollar *(GSIA, 2022)*.

In the 21$^{st}$ century, socially responsible investment has gained even more power. In 2006, United Nations principles for Reasonable Investment were introduced, and in 2015, the Sustainable Development Goals were adopted *(GSIA, 2022)*. Later on in the same year, the US Department of Labor issued guidelines on ESG integration in investment governance *(Martini, 2021)*. SRI practices and standards were acquired by investors and companies globally. Investors acknowledge the significance of ESG consideration on financial performance and risk management. According to the GSIA report, in 2022, global sustainable investing assets reached USD 30.3 trillion. The United States and Europe represent the majority of the sustainable investing assets.

Impact investment, which is considered a subset of Socially Responsible Investments and is more targeted at individuals, is a proactive approach that is directed to specific social and environmental challenges, such as poverty alleviation and sustainable agriculture *(Brandt and Necksten, 2016)*. In recent years, socially responsible investors have allocated significant amounts to impact investment, including microfinance. According to the study by Global Impact Investing Network (GIIN), as of 2021, USD 1,164 trillion was invested in this category, with a growth rate of 32% over the last years.

One should also mention Corporate Social Responsibility (CSR) investments, which have gained popularity in recent years. This refers to the investments made by companies for social, individual, and environmental initiatives as part of their corporate social responsibility efforts *(Zhu et al. 2021)*. The COVID-19 pandemic made it clear that enterprises should take seriously social responsibility, as it plays an important role in building trust and creating long-term value for companies and society. Moreover, as part of the CSR strategy, investing in SRI funds would be an important achievement for institutional investors, and in return, SRI funds can also invest in firms that have solid CSR strategies *(Brandt and Necksten, 2016)*. Today, investing in companies that have well-established ESG governance is becoming more profitable in the long run. They are also well prepared for crises, such as the COVID-19 pandemic, and companies without integrated sustainable management concepts *(Mavlutova et al. 2022)*.

## 4.1. Literature Review on SRIs

Researchers often conduct studies on the performance of SRI funds compared to conventional mutual funds. This section provides an overview of the previous studies related to SRI performance.

There are several studies that report that SRIs do not provide benefits for investors, and they just pay the cost of limiting their portfolios for social purposes. However, it raises questions about the popularity of the SRI funds. It is evident that more and more socially responsible funds are presented on the market every year. Nofsiger and Varma (2013) tried to show that companies that have social responsibility are less risky in market crisis periods. They compared the financial performance of socially responsible mutual funds to that of traditional mutual funds and found that during market crises, SRI funds exhibited greater resilience than traditional funds. The study covered both crises and non-crises periods from

2000 to 2011, including US equity SRI funds. Companies that had established social, environmental, and governance responsibilities experienced fewer adverse events in ESG areas during both bull and bear market periods. They used a matched pair method and compared SRI equity funds to non-SRI conventional equity funds. They computed return alphas for non-crises and crisis periods and discovered that alphas for SRIs and conventional funds were insignificantly negative and similar to one another. Traditional funds outperformed SRI funds during non-crisis periods by an annualized 0.67-0.95%. On the other hand, during crisis periods, SRI funds outperformed by 1.61-1.70%. This is because SRI funds are focused on ESG issues.

Leite and Cortez (2014) analyzed the performance and investment styles of internationally focused SRI funds domiciled in 8 European countries (Austria, Belgium, France, Germany, Italy, the Netherlands, Spain, and the United Kingdom) and compared them to the conventional funds. Considering investment style, SRI and conventional funds revealed similar factors of influence in most cases. Moreover, for performance evaluation, the authors used a conditional 5-factor model. This allows risk and performance to vary over time. They expanded the well-known Carhart 4-factor model by adding local factors to account for potential home biases. As a result, they concluded that differences in performance between selected SRI funds and conventional funds were not statistically important.

Matallín-Sáez et al. (2019) analyzed US socially responsible mutual funds' performance and market timing, taking (economic expansion and recession periods) into consideration business cycle regime changes and various classification criteria (Ethical strategy focus, SR attributes, scores, and Morningstar category). According to their results, environmental funds had stronger pre-crisis performance, while after crises, their performance worsened compared to other socially responsible funds. Also, funds with lower SR scores outperformed SR funds with high scores. It suggests that managers investing in stocks with lower SR indicators provided added value for investors than managers who choose to invest in more socially responsible characteristics. Additionally, funds with a 3x3 Morningstar equity style matrix outperformed other SR funds (these funds are mostly specialized in sectors and stock classes other than the nine Morningstar categories). Moreover, regarding market timing, socially responsible mutual funds underperformed during expansion, while no significant differences were found during the recession.

## 5. Methodology

For historical performance, portfolio, and matched pair analysis, I followed the methodology used by Janda and Svárovská (2010), Janda, Rausser, and Svárovská (2014), and Brandt and Necksten (2016), as my study can be seen as an extension of their work.

### 5.1. CAPM Regression Model

In order to address the first research question and examine whether microfinance investment funds contribute to efficient portfolio diversification, I use the CAPM regression model, which is the main regression of this dissertation and which is widely used by researchers, for example by Janda, Rausser, and Svárovská (2014), who used this approach in their paper. The CAPM regression formula is as follows:

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

Where $R_{i,t}$ and $R_{m,t}$ are returns of the microfinance fund *i* and return of the market portfolio *m*, respectively. $R_{f,t}$ is the risk-free rate in time *t*. The independent variable is market premium: $(R_{m,t} - R_{f,t})$, while the dependent variable is the excess return: $(R_{i,t} - R_{f,t})$.

The Capital Asset Pricing Model is a widely used financial model that provides precise predictions of the relationship between the risk of the asset and its expected return *(Bodie et al. 2014)*. William Sharpe, John Linter, and Jan Mossin introduced this model in the 1960s, 12 years later when Markowitz created modern portfolio management in 1952. According to this model, all investors use the input list to identify optimal portfolios on the efficient frontier *(Bodie et al. 2014)*.

The CAPM regression is performed for four portfolios, which were created based on the funds' trading currencies and also on an individual level. The same is performed for the Sharpe ratio and Treynor ratio.

### 5.2. Portfolio Analysis

For portfolio performance evaluation, I will use commonly used risk-adjusted performance measures like the Sharpe ratio, Treynor ratio, and Jensen's alpha and risk measures like the beta coefficient, the standard deviation of returns, and R2. These methods are used not only in the case of microfinance investment funds but generally for mutual funds evaluation purposes by several authors.

### 5.2.1. Simple CAPM regression

The simple, straightforward CAPM regression is used to calculate the beta coefficient and to compare it to the main regression for the robustness check. It is important to compare the beta from this regression to the result of the main regression in terms of significance, sign, and magnitude.

The formula is as follows:

$$E(R_i) = R_f + \beta_i\left[E(R_m) - R_f\right]$$

Where $E(R_i)$ and $E(R_m)$ stand for the expected return of fund *i* and the expected return of the market. $R_f$ is the risk-free rate, and $\beta_i$ is the beta coefficient for the investment, which represents its sensitivity to the market systematic risk. $E(R_m) - R_f$ is the market premium, which is the excess return expected from bearing systematic market risk. Total risk is divided into unsystematic and systematic risks. Unsystematic risk can be eliminated through diversification of the portfolio.

It is important to identify beta. If the beta is above one, it means that the fund is more volatile than the market. Betas between 0 and 1 also follow market trends, but they are less volatile than the market. If the beta is lower than 0, then the fund moves in the opposite direction of the market *(Bodie et al. 2014).*

Moreover, to evaluate the risk, a standard deviation is needed. It is the square root of the variance. Knowing the volatility of returns' standard deviation is useful *(Bodie et al. 2014).*

### 5.2.2. Sharpe ratio

A portfolio's performance can be assessed via mean-variance analysis based on Markowitz Modern Portfolio Theory (MPT). This theory provides a theoretical foundation to find the best possible asset allocation strategy for maximizing returns with a given level of risk. However, finding the optimal weights for the assets to construct an optimal portfolio is challenging. Another approach to optimize asset allocation is to maximize the Sharpe ratio.

It is calculated by subtracting the risk-free rate from the investor's rate of return and dividing it by a standard deviation of the return. The formula is as follows:

$$Sharpe\ Ratio = \frac{R_i - R_f}{Standard\ deviation}$$

Where $R_i$ is the average return of fund *i*, $R_f$ is the return of a risk-free asset, and the standard deviation of the fund's return, which shows the dispersion of the return in relation to the mean. The higher the Sharpe ratio, the better, as it is focused on the excess returns over the risk-free rate of an investment to estimate to what extent the investor is compensated for taking additional risk.

### 5.2.3. Treynor ratio

In 1965, methods to evaluate the financial performance of the US funds were limited. Treynor (1965) introduced a risk-adjusted performance measure. It calculates the excess return of an investment, taking into consideration systematic risk, which is measured by beta. The formula is as follows:

$$Treynor\ Ratio = \frac{R_i - R_f}{\beta_i}$$

Where $R_i - R_f$ is the risk premium of the portfolio. $\beta_i$ is the beta of the fund. The higher the ratio, the better the risk-adjusted performance of the fund. However, when the beta is negative, it says that the fund has exceptional performance, and in this case, other models should be applied.

### 5.2.4. Jensen's alpha

Jensen (1968) analyzed US mutual funds in relation to the benchmark S&P 500, using the one-year risk-free rate of the US treasury. According to his paper, the author defines portfolio performance as *"the ability of the portfolio manager or security analyst to increase returns on the portfolio through successful prediction of future security prices" and "The ability of the portfolio manager to minimize (through "efficient" diversification) the amount of "insurable risk" born by the holders of the portfolio" (Jensen, 1968).*

Jensen's alpha gives the average return of the asset over and above that predicted by the Capital Asset Pricing Model over a given beta and the average market risk *(Bodie et al.*

*2014).* It is calculated using the CAPM model and subtracting from the return of the fund the expected return of the benchmark, which is taken from the CAPM formula. The formula is as follows:

$$\alpha_{i,m} = \left[R_i - \left(R_f + \beta_{i,m} * \left(R_m - R_f\right)\right)\right]$$

Where $\alpha_i$ is Jensen's measure alpha, $R_i$ is the return of the fund, $R_f$ is the risk-free rate, $R_m$ is the return of the market, and $\beta_i$ is beta coefficient of the fund (systematic risk). Positive alpha expresses a superior performance, while negative alpha expresses a weak performance.

### 5.3. Historical Performance (p.a.)

To address the second research question and find out what kind of impact the COVID-19 pandemic has had on the performance of microfinance investment funds, we need to observe each fund's yearly performance from 2015 to 2023 and compare these to the corresponding benchmark indices. This analysis should give us a general idea of global trends in the microfinance investment market.

### 5.4. Matched Pair Analysis

I aim to compare microfinance investment funds' performance to that of other socially responsible investments' performance to cover the third research question, so I use matched pair analysis. This statistical technique is used to compare the performance of different funds with similar characteristics. This technique is used in several papers to study the performance of socially responsible investments, ethical investments, and others. For instance, Kreander et al. (2005), in their paper "Evaluating the performance of ethical and non-ethical funds: a matched pair analysis," used this approach.

In the matched pair analysis, funds are matched with each other using specific criteria. Once pairs are formed, the performance of these funds is analyzed during a specific period. It enables the assessment of differences in returns and risk-adjusted performance.

The chosen criteria for the analysis are:

1. *Inception date* –it is important for the paired funds to be in the comparable stage in their business cycle. The range of up to 24 months is permitted; however, as an

exception, the larger gap is between one pair, Swisscanto (LU) PF Resp Balance (EUR) AA and Triodos Microfinance Fund B dis EUR. The Swisscanto sub-fund was established in 1999, and the Triodos sub-fund was established in 2009. Most other funds have a gap of less than 12 months. Ensuring similar inception dates is crucial as the funds are likely to face similar market conditions and stages in their development.

2. *Initial fund size* – variation up to 200 million is permitted between matched funds. So, the funds of similar scales are compared. Matching the funds with similar initial fund sizes guarantees that we are comparing funds with similar operational strategies and management skills.
3. *Currency alignment* – each pair of matched funds is traded in the same currency, either in EURO or US dollars. This control mitigates the risk of currency exchange rate fluctuation.

By implementing these criteria and controls it ensures fair and accurate comparison.

## 6. Hypotheses

Since microfinance investment funds provide diversification benefits, it is interesting to know the behavior of the beta coefficient. Betas between 0 and 1 also follow market trends, but they are less volatile than the market. So, the first two hypotheses are:

Hypothesis 1: The beta coefficient of an individual fund should be between 0 and 1.

Hypothesis 2: The beta coefficient of a portfolio should be between 0 and 1.

The Sharpe ratio is an important indicator for evaluating the performance of the fund. The higher the Sharpe ratio, the better the risk-adjusted returns. So, the next Hypotheses are:

Hypothesis 3: The Sharpe ratio of a fund should be higher than 0.

Hypothesis 4: The Sharpe ratio of a portfolio should be higher than 0.

Taking into consideration moderate returns associated with microfinance investment funds, as they are focused on financial inclusion, it is expected that the fund will generate close to zero positive alpha. The hypotheses are:

Hypothesis 5: Jensen's alpha of a fund is positive and close to zero

Hypothesis 6: Jensen's alpha of a portfolio is positive and close to zero

In terms of matched pair analysis, in this dissertation, I perform a pairwise comparison of the beta coefficients of microfinance investment funds and socially responsible investment funds. So, to determine which type of funds are more correlated with the markets. Since SRIs invest in developed markets and have more diversified portfolios, I expect the beta coefficient of socially responsible investment funds to be higher than that of microfinance investment funds. The hypothesis is:

Hypothesis 7: the beta coefficient of the MFIFs might be lower than the beta coefficient of the SRIs.

It is also important to compare the Sharpe ratios of the pairs to determine which type of investments provide better risk-adjusted returns. Since microfinance investment funds are in a more stable microfinance sector, it is probable that they have lower volatility and potentially higher Sharpe ratios. So, the hypothesis is:

Hypothesis 8: the Sharpe ratio of the MFIFs might be higher than the Sharpe ratio of the SRIs.

Since microfinance investment funds and socially responsible investment funds are oriented on the social impact and their nature is similar in this matter, they may have similar Jensen's alpha. While this metric can provide insights into the financial performance of the funds, given the dual objectives of these funds, the results may not provide a clear picture.

# 7. Data

In the analysis, I used three datasets. As a first step, I compare the returns of the microfinance investment funds to the returns of the specific benchmark indices individually. Furthermore, to cover the COVID-19 pandemic influence, I do a historical performance analysis per annum. Additionally, four microfinance portfolios were created based on four trading currencies, which are included in the studied sample. So, analysis is carried out for all portfolios separately. As the new fund is created or liquidated, the portfolio is rebalanced each time. So, equally weighted portfolios are created. Afterward, for the comprehensive picture, I perform a matched pair evaluation, meaning that I compare microfinance investment funds with other socially responsible funds in terms of risk and return.

## 7.1. Data on Microfinance Investment Funds

To evaluate the attractiveness of microfinance investment funds for investors, I study the monthly returns of 17 microfinance investment funds from January 2015 to January 2024. The historical data on microfinance investment funds Net Asset Value per share is obtained from EIKON – Thomson Refinitiv on the 21st and 23rd of February 2024. Additional information is collected from the funds' monthly and annual reports and prospectuses. Together with monthly NAVs, it contains data on dividends, if distributed, and total assets. I study 17 open-end microfinance investment funds for a given period, which, in total, have 130 shares (some microfinance investment funds have their sub-funds. These sub-funds differ in currency or investment class. According to this differentiation in this research, in total, 130 funds/sub-funds are represented). 102 of these funds are fixed income, and 28 are mixed allocation. It should be noted that data on equity funds is not publicly available on EIKON, so in the sample, no equity fund is presented. 48 of the funds' shares are denominated in EURO, while the remaining 82 are denominated in US dollars (so, two asset currencies are represented). It should be noted that most of the studied funds issue more than one share class, and shares are in different trading currencies. Moreover, there are 4 currencies in which the different share classes are traded. These currencies are the US Dollar, Euro, British Pound, and Swiss Franc (there are also a few sub-funds whose trading currencies are Swedish Krone or Norwegian Krone; however, due to lack of data, they are not included in the sample). The studied sample consists of 39 sub-funds for USD investors, 55 for the Euro, 9 for the British pound, and 26 for the Swiss Franc. The majority of the funds' domiciles are located in Luxembourg; only a few exceptions are notable: EMF Microfinance Fund AGmvK's domicile is in Liechtenstein, the ERSTE Responsible Microfinance Fund is in Austria, IIV Microfinanzfonds is located in Germany. For detailed information, refer to Table A.6. in the Appendix.

Apart from debt investments, Triodos Microfinance Fund, responsAbility Micro and SME Finance Leaders, responsAbility Global Micro and SME Finance Fund, and GLS Alternative Investments Mikrofinanzfonds participate in the equity of the selected microfinance institutions with shares between 15% to 20%.

In my research, I include funds based on 5 criteria:

- Structure of the microfinance investment funds: The market consists of close-end mutual funds and open-end mutual funds. As the data on monthly NAVs is available publicly, I have decided to include only open-end funds.
- Categories of the microfinance investment funds: The majority of the funds are Fixed-income, while the remaining are split between Mixed-allocation funds and Equity funds. The data for the Equity funds was not available on EIKON, so I have collected data on the Fixed-income funds and Mixed-allocation funds according to their availability.
- Availability of Data: I include all the funds that were available on the EIKON database as of February 2024, regardless of the launch date, asset class, and share class. An additional criterion was reporting the Net Asset Value on EIKON on at least a monthly basis.
- Microfinance Investment Quota: I have included funds that invest at least 50% of their assets in microfinance. There are other funds that invest in microfinance only a small portion of their assets. Therefore, the performance of such funds should not be considered as a representation of "true" microfinance funds.
- Liquidated Funds: I have included liquidated or merged into other funds in order to prevent survivorship bias.

These funds have clearly defined financial as well as social objectives. However, only financial performance can be measured properly. However, some funds share reports on their social performance, which include indicators such as the number of borrowers reached, the percentage of women borrowers, the share of customers who live in rural areas, etc.

### 7.2. Data on Benchmarks and the Risk-free Rate

In this study, as my purpose is to compare the returns on microfinance investment funds to the returns of specific benchmark indices that represent a main alternative for microfinance engagement, I have selected the MSCI World Index as a proxy for the return of developed markets. It is important to note that selected funds provide loans to microfinance institutions and also that they may invest in debt instruments or acquire equity stakes in these institutions. So, I should use both stock indices as well as fixed income benchmarks. To test the performance of these funds in accordance with emerging fixed-income markets, I have chosen to use FTSE Fixed Income Indices – FTSE World Government Bond (WGBI) Total Return Index. Although daily data is available, it is preferable for this study's purposes to extract the index value on the last day of each month to be in line with the monthly Net Asset Values of the Microfinance Investment Funds. Moreover, it is also interesting to explore the performance of microfinance funds in accordance with the securities that have similar characteristics as studied microfinance investment funds. So, as a proxy for the financial companies in emerging markets, I have selected the MSCI Emerging Market Diversified Multi-factor Index. This approach was also used by Janda and Svárovská (2010) in their research paper. Taking into consideration currency volatility, I have retrieved data on each benchmark in all trading currencies.

The MSCI (Morgan Stanley Capital International) World Index was launched in 1969 and tracks the equity performance across 23 Developed Countries, and it covers almost 85% of the free float-adjusted market capitalization in each country *(MSCI World Index USD, Index Factsheet, 2024).* This index has been used as a proxy by several authors *(e.g. Krauss and Walter 2009; Janda, Rausser & Svárovská 2014).* This index is denominated in US Dollars. However, I have collected data from a currency conversion series for all four trading currencies in the sample.

The MSCI Emerging Market Diversified Multi-factor Index is based on the MSCI Emerging Markets Index, which includes large and mid-cap stocks in 24 emerging markets. This index is interesting as it covers countries where microfinance investment funds' portfolios are represented (the index includes Brazil, Chile, China, Colombia, Egypt, Greece, India, Indonesia, Korea, Kuwait, Malaysia, Mexico, Peru, and others).

The FTSE WGBI is the leading benchmark providing exposure to the global sovereign fixed-income market. It consists of bonds from 20 countries, dominated by several currencies (FTSE Russell, an LSEG Business). The data was available for all the currencies in the sample.

In order to reach consistency, we used different risk-free rates denominated in all four currencies. I have collected data on 4-week U.S. government treasury bills as a risk-free rate proxy. The data was collected from FRED. Risk-free rate proxy for the Euro I used 1-month EURIBOR, and the data was collected from the ECB Data Portal. For CHF and GBP, LIBOR/SARON[5] 3 month and LIBOR/SONIA 3 month rates were used, which were collected from the SNB Data Portal.

### 7.3. Data on Socially Responsible Investment Funds

To conduct a matched pair analysis and compare microfinance investment funds' performance to other socially responsible investments' performance, similar to MFIFs, I study the monthly returns of 17 socially responsible investment sub-funds from January 2015 to January 2024. The historical data on microfinance investment funds Net Asset Value per share is obtained from EIKON – Thomson Refinitiv on the 25th and 26th of March 2024. It also contains data on dividends, if distributed, and total assets. So, 34 open-end mutual funds are included in the matched pair analysis (a total of 17 pairs). 10 out of the SRIs are fixed-income funds, and the remaining 7 funds are mixed-allocation. Moreover, 10 out of the SRIs are denominated in EURO, and the 7 funds are denominated in US dollars.

It should be noted that the majority of socially responsible investment funds are equity funds and have a longer history, compared to microfinance investment funds, which are a new concept and are mainly fixed-income funds. This made it difficult to find more pairs and analyze big data.

[5] From year 2022 onward LIBOR CHF 3M and LIBOR GBP 3M have been substituted by SARON 3M and SONIA 3M, respectively.

## 8. Data Management and Consideration

The net asset value of funds per share is used to calculate monthly returns. The justification for using monthly data is outlined with the fact that the majority of the fund's net asset values are calculated on a fixed valuation day once or twice a month *(Janda et al. 2014)*. In the sample, there are some funds that pay dividends. So, before calculating monthly returns for the funds paying dividends, dividend-adjusted NAVs are calculated. For the calculation of monthly returns $Ri,t$ of fund $i = 1,2, 3 \ldots 130$ during month $t$, the following formula is used:

$$R_{i,t} = \left[\frac{(NAV_{i,t} - NAV_{i,t-1})}{NAV_{i,t-1}}\right] * 100$$

The natural log return formula could be used to minimize the effect of the possible outlier observations on returns; however, in this case, it cannot be an issue as I have calculated the change from the month before and not from inception *(Janda et al. 2014)*. This approach was also used by Janda and Svárovská (2010) in their research. For the benchmark indices, I have used a similar formula:

$$R_{m,t} = \left[\frac{(Index_{m,t} - Index_{m,t-1})}{Index_{m,t-1}}\right] * 100$$

Where $m$ is the index and $t$ refers to the month.

To ensure consistency with the variables change methods as the risk-free rates are reported as the actual rate in the portal, change in the risk-free rate is calculated as:

$$R_{f,t} - R_{f,t-1}$$

The dataset includes fixed-income and mixed-allocation funds. In the sample, all the funds that were available on EIKON are included, so the unbalanced dataset is constructed. The classification of the funds is based on EIKON when available; for the funds for which complete information was not available, I collected information from funds' reports and prospectuses.

In the sample, there were no missing values. For all the funds/sub-funds, monthly NAVs were available for the whole period. Moreover, one of the mixed allocation sub-funds had (-90.01%) in one month. Upon visual examination, it is apparent that this data point exhibits extreme characteristics. So, I disregard this observation in the analysis.

## 9. Mean-Return Comparison

In this section analyze of the return and risk characteristics are represented. It is measured by the average monthly return and the standard deviation of the returns.

### 9.1. Key Performance Statistics of the Microfinance Investment Funds

The sample combines 130 sub-funds of the 17 Microfinance Investment Funds. As mentioned in the studied sample, microfinance investment funds are denominated in four different currencies: EUR, USD, CHF, and GBP. In Table 1., key performance statistics are presented for USD- and EUR-denominated microfinance investment funds and benchmark indices on an individual level. The same is presented for CHF- and GBP-denominated microfinance investment funds in Table A.1. in the Appendix. From the results presented in the table below, it is evident that overall microfinance investment funds generated moderate mean monthly returns from January 2015 to January 2024. For EUR-denominated funds, the best mean monthly results were achieved by the BOMF - BO EUR CAP sub-fund; However, this sub-fund is newly launched, and it is not fair for the result to compare to other long-term sub-funds. It should be noted that comparing mean monthly returns of the funds should be approached with caution, as the data series are different lengths and influenced by general trends. Some of the funds, like Triodos I-II Cap EUR and Triodos P Cap EUR, have relatively high mean returns, and the standard deviation is moderate compared to other funds. The average monthly return of EUR-denominated funds was approximately 0.12%. Only 10 sub-funds (two of them are liquidated) out of 56 had close to zero but negative mean returns. In the case of USD- and GBP-denominated funds, all of them had positive mean monthly returns (except Finethic II C & Finethic II F, which are funds of funds), and in the case of CHF-denominated funds, only 6 sub-funds had negative returns. If we look at the funds with a longer time period than 12 months, the mean monthly return varies between -0.36% and 0.68%.

In terms of the total risk, which is measured by the standard deviation of monthly returns, EUR-denominated microfinance investment funds recorded very low volatility on average (0.66%) compared to all indices. The EMF AGmvK (FO/T EUR) sub-fund had the lowest standard deviation during the studied period, which indicates that it was the least volatile among other peers. The same tendency was shown among USD-, CHF- and GBP-denominated microfinance investment funds, as the average standard deviations (0.44%, 0.52%, and 0.41% respectively) were lower compared to the corresponding indices.

The mean returns of most of the individual funds are lower compared to the MSCI World Index, which represents the equity market. However, one should take into consideration that the majority of the fund/sub-funds in the sample are Fixed-income funds, and the remaining are Mixed allocation funds.

**Table 1.** Descriptive Statistics – EUR- and USD-denominated MFIFs.

Mean, Minimum, Maximum monthly rate of returns per trading currency and corresponding standard deviation for EUR- and USD-denominated funds/sub-funds and also for benchmark idices over the studied period. The mean of the MFIFs is calculated excluding funds of funds.

| MFIFs | Mean | Stand. Dev. | Min | Max | N |
|---|---|---|---|---|---|
| ***Panel A: EUR-denominated funds*** | | | | | |
| Triodos R Cap EUR | 0.22% | 0.89% | -4.40% | 3.27% | 109 |
| Triodos B Cap EUR | 0.22% | 0.90% | -4.38% | 3.28% | 109 |
| Triodos B Dis EUR | 0.02% | 1.18% | -4.40% | 3.26% | 109 |
| Triodos I Cap EUR | 0.28% | 0.89% | -4.33% | 3.34% | 109 |
| Triodos I Dis EUR | 0.03% | 1.20% | -4.75% | 3.35% | 109 |
| Triodos I-II Cap EUR | 0.29% | 0.97% | -4.31% | 3.37% | 81 |
| Triodos P Cap EUR | 0.29% | 1.13% | -4.25% | 3.37% | 50 |
| Triodos R Dis EUR | 0.02% | 1.10% | -4.40% | 3.29% | 109 |
| Triodos Z Dis EUR | 0.03% | 1.16% | -4.41% | 3.31% | 109 |
| Triodos Z Cap EUR | 0.26% | 0.86% | -4.35% | 2.24% | 109 |
| Wallberg Global I | -0.06% | 1.01% | -3.10% | 5.07% | 93 |
| Wallberg Global P | 0.09% | 0.75% | -1.59% | 5.09% | 93 |
| EMF AGmvK (FO/T EUR) | 0.22% | 0.16% | -0.40% | 0.42% | 52 |
| EMF AGmvK (I/T EUR) | 0.29% | 0.36% | -0.01% | 2.01% | 39 |
| I-AM I EUR A | -0.02% | 1.35% | -6.08% | 2.63% | 109 |
| I-AM I EUR T | 0.20% | 1.08% | -6.10% | 2.63% | 109 |
| I-AM R EUR A | -0.03% | 1.27% | -6.13% | 2.59% | 109 |
| I-AM R EUR T | 0.15% | 1.08% | -6.13% | 2.58% | 109 |
| I-AM Vision I EUR (A) | -0.02% | 0.60% | -3.18% | 0.59% | 109 |
| I-AM Vision I EUR (T) | 0.14% | 0.18% | -1.05% | 0.60% | 109 |
| I-AM Vision R EUR (A) | -0.04% | 0.52% | -3.19% | 0.54% | 109 |
| I-AM Vision R EUR (T) | 0.10% | 0.18% | -1.10% | 0.55% | 109 |
| I-AM Vision S EUR (A) | 0.21% | 0.18% | -0.28% | 0.42% | 31 |
| IIV Mikrofinanzfonds Class I | 0.01% | 0.77% | -5.62% | 1.92% | 109 |
| IIV Mikrofinanzfonds Class R | 0.00% | 0.65% | -4.25% | 1.87% | 109 |
| rA Global Micro & SME Fin Fd H II EUR | 0.04% | 0.44% | -1.87% | 1.18% | 109 |
| rA Global Micro & SME Fin Fd H EUR | 0.01% | 0.44% | -1.91% | 1.16% | 109 |
| rA Micro & SME Fin Leadrs S EUR | 0.16% | 0.53% | -2.38% | 1.95% | 109 |
| rA Micro & SME Fin Debt A | -0.04% | 0.59% | -3.38% | 0.45% | 109 |
| rA Micro & SME Fin Debt I EUR | 0.01% | 0.60% | -3.38% | 0.49% | 109 |
| rA Micro & SME Fin Debt I II EUR | 0.07% | 0.41% | -2.28% | 0.68% | 99 |
| SEB II A D NH EUR Dis | -0.14% | 1.89% | -7.62% | 5.77% | 60 |
| SEB II B C NH EUR Cap | 0.20% | 1.75% | -3.76% | 8.53% | 60 |

| | | | | | |
|---|---|---|---|---|---|
| SEB II B/D NH EUR Dis | -0.14% | 1.68% | -6.33% | 5.58% | 60 |
| BOMF - D EUR Hdg | 0.14% | 0.12% | -0.31% | 0.45% | 92 |
| BOMF - F EUR Cap Hgd | 0.14% | 0.16% | -0.35% | 0.46% | 49 |
| BOMF - H CAP EUR H | 0.19% | 0.14% | -0.27% | 0.50% | 72 |
| BOMF - I EUR Cap | 0.18% | 0.12% | -0.29% | 0.48% | 109 |
| BOMF - N EUR Cap | 0.16% | 0.12% | -0.30% | 0.46% | 109 |
| BOMF - P EUR Cap H | 0.12% | 0.12% | -0.34% | 0.43% | 109 |
| BOMF - S CAP EUR H | 0.18% | 0.13% | -0.27% | 0.50% | 88 |
| BOMF -C EUR DIS HDG | 0.44% | 0.04% | 0.38% | 0.48% | 5 |
| BOMF - BO EUR CAP HDG | 0.54% | 0.04% | 0.50% | 0.57% | 3 |
| BOMF - C EUR CAP HDG | 0.45% | 0.03% | 0.42% | 0.48% | 3 |
| Luxembourg A Acc | 0.11% | 0.43% | -2.56% | 2.14% | 109 |
| Luxembourg B Acc | 0.17% | 0.32% | -0.41% | 1.03% | 109 |
| Luxembourg C Acc | 0.10% | 0.20% | -0.17% | 0.79% | 109 |
| KCD-Mikrofinanzfonds - III | 0.03% | 0.65% | -4.17% | 1.88% | 108 |
| GLS A | -0.03% | 0.57% | -2.60% | 0.73% | 96 |
| GLS B | -0.01% | 0.58% | -2.64% | 0.75% | 97 |
| GLS C | 0.07% | 1.00% | -4.21% | 3.23% | 97 |
| ERSTE D01 | 0.11% | 0.27% | -1.48% | 0.52% | 73 |
| ERSTE EUR I01 | 0.12% | 0.27% | -1.48% | 0.61% | 73 |
| ERSTE EUR R01 | -0.04% | 0.83% | -3.16% | 2.47% | 109 |
| ERSTE EUR R01 VTIA | 0.16% | 0.17% | -0.20% | 0.51% | 45 |
| ERSTE EUR R01 T | 0.08% | 0.45% | -1.53% | 2.46% | 109 |
| **Mean MIVs** | **0.12%** | **0.66%** | | | |
| ***Benchmark Indices EUR*** | | | | | |
| MSCI World | 0.77% | 4.18% | -13.50% | 11.55% | 109 |
| MSCI EM | 0.21% | 4.26% | -15.64% | 9.74% | 109 |
| FTSE WGBI | 0.08% | 1.70% | -3.34% | 6.88% | 109 |

| MFIFs | Mean | Stand. Dev. | Min | Max | N |
|---|---|---|---|---|---|
| ***Panel B: USD-denominated funds*** | | | | | |
| BOMF - Andban USD (Liquidated) | 0.20% | 0.49% | -1.90% | 0.57% | 36 |
| BOMF - D USD Cap | 0.31% | 0.14% | -0.03% | 0.61% | 92 |
| BOMF - S USD | 0.17% | 0.87% | -4.02% | 0.65% | 26 |
| BOMF - I USD D | 0.18% | 0.95% | -4.24% | 0.79% | 24 |
| BOMF - H USD Cap | 0.35% | 0.16% | 0.01% | 0.65% | 72 |
| BOMF - I USD Cap | 0.33% | 0.14% | -0.01% | 0.63% | 109 |
| BOMF - N USD Cap | 0.32% | 0.31% | -0.03% | 3.09% | 109 |
| BOMF - P USD Cap | 0.28% | 0.13% | -0.07% | 0.57% | 109 |
| BOMF - S CAP USD | 0.35% | 0.15% | 0.01% | 0.65% | 88 |
| BOMF - C USD DIS | 0.58% | 0.03% | 0.51% | 0.61% | 5 |
| BOMF - BO USD CAP | 0.68% | 0.01% | 0.67% | 0.69% | 3 |
| BOMF - C USD CAP | 0.59% | 0.01% | 0.59% | 0.61% | 3 |
| EMF AGmvK A | 0.07% | 0.67% | -3.39% | 1.51% | 52 |
| EMF AGmvK D (I/A) USD | 0.21% | 0.81% | -3.83% | 0.57% | 41 |
| EMF AGmvK D T | 0.07% | 0.83% | -3.80% | 1.56% | 109 |
| EMF AGmvK FO/A USD | 0.21% | 0.79% | -3.61% | 0.55% | 35 |
| EMF AGmvK R (I/T) USD | 0.41% | 0.09% | 0.23% | 0.57% | 42 |
| EMF AGmvK R F/T | 0.30% | 0.26% | -0.67% | 1.55% | 109 |
| EMF AGmvK R T | 0.36% | 0.13% | -0.08% | 0.55% | 56 |
| EMF AGmvK SN T | 0.25% | 0.16% | -0.10% | 0.46% | 11 |

| | | | | | |
|---|---|---|---|---|---|
| EMF AGmvK T | 0.22% | 0.35% | -0.71% | 1.51% | 52 |
| I-AM I USD A | 0.34% | 1.21% | -5.91% | 2.27% | 60 |
| I-AM I USD T | 0.36% | 1.10% | -5.91% | 2.97% | 109 |
| I-AM R USD T | 0.32% | 1.10% | -5.94% | 2.79% | 109 |
| rA Micro & SME Fin Debt I II USD | 0.23% | 0.40% | -2.08% | 0.77% | 99 |
| rA Micro & SME Fin Leadrs I USD | 0.30% | 0.54% | -2.21% | 2.21% | 109 |
| rA Micro & SME Fin Leadrs I-IV USD | 0.39% | 0.53% | -0.90% | 1.85% | 35 |
| rA Global Micro & SME Fin Fund II USD | 0.19% | 0.44% | -1.75% | 1.30% | 109 |
| rA Global Micro & SME Fin Fund B | 0.16% | 0.44% | -1.78% | 1.27% | 109 |
| I-AM Vision I USD (A) | 0.11% | 0.57% | -2.62% | 0.75% | 106 |
| I-AM Vision I USD (T) | 0.26% | 0.19% | -0.90% | 0.74% | 109 |
| I-AM Vision R USD (A) | 0.11% | 0.43% | -1.61% | 0.70% | 91 |
| I-AM Vision R USD (T) | 0.21% | 0.19% | -0.95% | 0.70% | 109 |
| I-AM Vision S USD (T) | 0.32% | 0.19% | -0.03% | 0.61% | 34 |
| Finethic C USD | 0.21% | 0.13% | -0.23% | 0.56% | 109 |
| Finethic S USD | 0.00% | 0.03% | -0.18% | 0.18% | 109 |
| Finethic II C | -0.15% | 1.76% | -13.66% | 0.70% | 70 |
| Finethic II F | -0.12% | 1.76% | -13.63% | 0.73% | 70 |
| Global Microfinance Debt (FoF) -I- | 0.17% | 0.20% | -0.43% | 0.61% | 87 |
| **Mean MIVs** | **0.25%** | **0.48%** | | | |
| ***Benchmark Indices USD*** | | | | | |
| MSCI World | 0.69% | 4.44% | -13.47% | 12.66% | 109 |
| MSCI EM | 0.15% | 5.05% | -15.61% | 14.63% | 109 |
| FTSE WGBI | -0.02% | 1.96% | -5.88% | 4.88% | 109 |

*Source: Own calculations based on EIKON data*

## 9.2. Historical Performance (p.a.)

To have a look at the funds' yearly performance during the observation period and compare these values with the corresponding performances of the benchmark indices would be useful to see the COVID-19 influence on the performance of these funds. This part could answer the second question regarding the COVID-19 pandemic's impact on the performance of microfinance investment funds.

Table 2. shows net returns according to calendar years from 2015 to 2023 for each Microfinance Investment Fund, for EUR-denominated funds. The same results are presented in the Table A.2. in the Appendix for US dollar, CHF, and GBP currencies, respectively. Moreover, on the tables, we have the yearly performance of the corresponding benchmark indices. Let us analyze the historical performance per annum for four currencies separately before outlining general trends and findings. For each calendar year, the highest returns are marked in bold.

While examining the total per annum returns of the funds, it is evident that the performance of each fund differs according to their trading currencies. Generally, MFIFs have smaller mean monthly returns compared to the benchmark indices. This is due to their focus on providing stable income and also their main objective of having a social impact rather than being oriented on profit maximization.

The benchmark indices, especially MSCI World and MSCI EM, indicate higher volatility over the period, with significant gains and losses. FTSE indices also show fluctuation, though generally, it is less dramatic compared to equity indices. The COVID-19 pandemic started affecting global markets at the beginning of 2020. Looking at the individual monthly data of the benchmark indices, it is evident that both equity indices faced vital volatility during 2020. There was a sharp downturn in early 2020, which was followed by a strong recovery due to the government's and central bank's intervention and fiscal and monetary support programs, which were reflected in the strong annual performance of the indices. On the contrary, in 2021, the annual returns for three out of four indices decreased as the delayed effect of crises was detected. Emerging market indices returns dropped dramatically; this could be caused by volatility in currency and less access to COVID-19 vaccines, which burdened economic recovery in these markets.

MFIFs maintained more stable performance, even during the pandemic peak, although all the funds/sub-funds return decreased compared to the preceding year. For EUR-denominated funds, the 2020 year was, on average, the worst, as the majority of funds had negative annual returns. The same tendency was for CHF- and GBP-denominated funds. For USD-denominated funds, the annual return decreased in 2020 compared to the previous year. However, positive returns were still posted by the absolute majority of funds. In 2021, all the funds managed to improve their performance and even outperformed some indices. For example, USD-, CHF- and GBP-denominated funds, on average, outperformed MSCI EM and FTSE WGBI indices.

During 2022, a sharp drop in the yearly return for benchmark indices is observed. The positive trends reversed, and all the benchmark indices posted negative annual returns. The microfinance industry was no exception. However, the average annual return of the funds/sub-funds was positive and higher compared to benchmark indices. These results are the outcome of the recession fear and market turbulence as the Russia-Ukraine war negatively impacted the global market.

**Table 2.** Mean Monthly and Total p.a. Returns on EUR-denominated Microfinance Investment Funds' share classes and Benchmark Indices.

From January 2015 to the end of December 2023. The values in grey font represent newly established funds in the respective calendar year. The average is based on the funds, which have a rate of return for the entire 12-month period (the values are in black font). For each calendar year, the highest returns are marked in bold.

| **MFIF** | **First** | **Last** | **Mean Monthly return** | **Total return p.a.** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** |
| Triodos R Cap EUR | Jan-15 | Jan-24 | 0.22% | 2.57% | 3.67% | 0.21% | 3.76% | 2.74% | -4.89% | 7.13% | 3.88% | 4.68% |
| Triodos B Cap EUR | Jan-15 | Jan-24 | 0.22% | 2.60% | 3.63% | -0.07% | 4.08% | 2.77% | -4.91% | 7.14% | 3.87% | 4.70% |
| Triodos B Dis EUR | Jan-15 | Jan-24 | 0.02% | -2.29% | 3.67% | -2.05% | -0.61% | 0.90% | -7.07% | 5.24% | 1.84% | 2.38% |
| Triodos I Cap EUR | Jan-15 | Jan-24 | 0.28% | 3.36% | 4.30% | 0.92% | 4.46% | 3.50% | -4.17% | 7.96% | 4.45% | 5.66% |
| Triodos I Dis EUR | Jan-15 | Jan-24 | 0.03% | -2.18% | 4.23% | -1.67% | -0.91% | 1.01% | -7.02% | 5.19% | 1.71% | 2.66% |
| Triodos I-II Cap EUR | May-17 | Jan-24 | 0.29% | | | 0.48% | **4.61%** | 3.70% | -4.01% | **8.21%** | **4.66%** | 5.95% |
| Triodos P Cap EUR | Dec-19 | Jan-24 | 0.29% | | | | | 0.08% | -4.05% | 8.18% | 4.40% | 5.74% |
| Triodos R Dis EUR | Jan-15 | Jan-24 | 0.02% | -2.29% | 3.66% | -1.74% | -0.95% | 0.93% | -6.99% | 5.17% | 1.86% | 2.30% |
| Triodos Z Dis EUR | Jan-15 | Jan-24 | 0.03% | -2.07% | 4.15% | -1.68% | -0.90% | 1.01% | -6.95% | 5.24% | 1.66% | 2.59% |
| Triodos Z Cap EUR | Jan-15 | Jan-24 | 0.26% | 3.16% | 4.10% | 0.43% | 4.55% | 3.31% | -4.31% | 7.81% | 4.27% | 5.44% |
| GLS A | Jan-16 | Jan-24 | -0.03% | | 1.57% | -3.40% | -0.05% | 1.13% | -0.61% | -0.65% | -0.69% | -0.39% |
| GLS C | Jan-16 | Jan-24 | -0.01% | | 1.77% | -3.44% | 0.21% | 1.25% | -0.35% | -0.40% | -0.44% | -0.19% |
| GLS B | Jan-16 | Jan-24 | 0.07% | | **7.23%** | -6.61% | -1.61% | 2.54% | 1.21% | 0.66% | 1.13% | 2.00% |
| IIV Mikrofinanzfonds Class I | Jan-15 | Jan-24 | 0.01% | 0.54% | 0.13% | -3.55% | 0.16% | 0.41% | 0.60% | 0.42% | 0.25% | 1.27% |
| IIV Mikrofinanzfonds Class R | Jan-15 | Jan-24 | 0.00% | 0.40% | 0.09% | -2.67% | -0.10% | 0.30% | 0.52% | 0.29% | 0.11% | 0.73% |
| SEB II A/D NH EUR Dis | Jan-15 | Dec-19 | -0.14% | -0.92% | 2.54% | -6.77% | -0.81% | -1.99% | | | | |
| SEB II B/C NH EUR Cap | Jan-15 | Dec-19 | 0.20% | 2.71% | 6.02% | -3.70% | 5.56% | 1.69% | | | | |
| SEB II B/D NH EUR Dis | Jan-15 | Dec-19 | -0.14% | -1.66% | 1.76% | -7.45% | -0.79% | -0.18% | | | | |
| Wallberg I | Jan-15 | Sep-22 | -0.06% | -0.51% | 0.88% | -5.76% | 0.61% | -0.41% | -2.27% | -2.82% | 5.20% | |
| Wallberg P | Jan-15 | Sep-22 | 0.09% | 1.43% | 2.83% | -3.92% | 2.71% | 1.60% | -0.29% | -0.75% | 5.22% | |
| I-AM Vision - I EUR (A) | Jan-15 | Jan-24 | -0.02% | -0.99% | -0.12% | -1.93% | -0.29% | -0.04% | -0.36% | 0.49% | -0.60% | 1.02% |
| I-AM Vision - I EUR (T) | Jan-15 | Jan-24 | 0.14% | 2.26% | 2.34% | 0.45% | 1.20% | 1.44% | 1.14% | 1.98% | 1.39% | 3.03% |
| I-AM Vision - R EUR (A) | Jan-15 | Jan-24 | -0.04% | -1.54% | -0.22% | -2.04% | -0.37% | -0.14% | -0.45% | 0.40% | -0.71% | 0.67% |
| I-AM Vision - R EUR (T) | Jan-15 | Jan-24 | 0.10% | 1.67% | 1.76% | -0.07% | 0.63% | 0.89% | 0.51% | 1.48% | 0.83% | 2.47% |
| I-AM Vision - S EUR (A) | Jul-21 | Jan-24 | 0.21% | | | | | | | 1.20% | 1.60% | 3.26% |
| Luxembourg A Acc | Jan-15 | Jan-24 | 0.11% | 3.16% | -0.54% | 1.72% | 1.73% | 1.32% | 0.96% | 1.22% | 1.68% | 1.22% |
| Luxembourg B Acc | Jan-15 | Jan-24 | 0.17% | **3.96%** | 0.41% | 1.78% | 2.29% | 1.97% | 1.23% | 2.26% | 2.68% | 1.98% |
| Luxembourg C Acc | Jan-15 | Jan-24 | 0.10% | 2.48% | 0.50% | 0.82% | 1.28% | 1.31% | 0.42% | 1.25% | 1.67% | 1.21% |
| KCD-Mikrofinanzfonds - III | Feb-15 | Jan-24 | 0.03% | 2.69% | -0.45% | -0.36% | 0.56% | 0.00% | -0.42% | 2.06% | -1.21% | 0.33% |

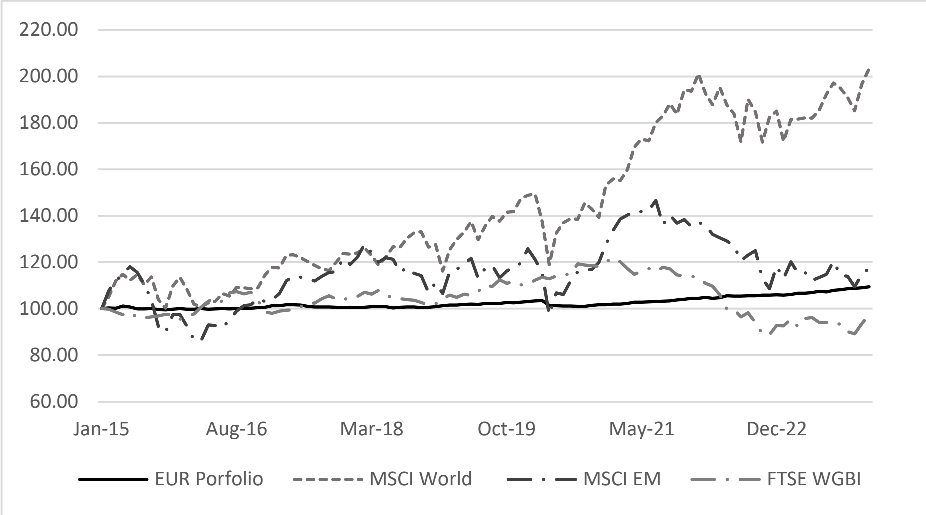
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BOMF - D EUR Hdg | Jun-16 | Jan-24 | 0.14% | | 0.98% | 1.46% | 1.37% | 2.42% | 0.63% | 1.45% | 0.41% | 3.96% |
| BOMF - F EUR Cap Hgd | Jun-16 | Jan-24 | 0.14% | | | | | | 0.56% | 1.46% | 0.43% | 3.99% |
| BOMF - H CAP EUR H | Feb-18 | Jan-24 | 0.19% | | | | 1.67% | 2.94% | 1.14% | 1.96% | 0.91% | 4.49% |
| BOMF - I EUR Cap | Jan-15 | Apr-20 | 0.18% | 3.30% | 2.35% | 1.75% | 1.68% | 2.73% | 0.94% | 1.75% | 0.71% | 4.28% |
| BOMF - N EUR Cap | Jan-15 | Jan-24 | 0.16% | 3.10% | 2.11% | 1.60% | 1.48% | 2.52% | 0.74% | 1.55% | 0.51% | 4.07% |
| BOMF - P EUR Cap H | Jan-15 | Jan-24 | 0.12% | 2.64% | 1.61% | 1.03% | 1.01% | 2.06% | 0.27% | 1.08% | 0.06% | 3.59% |
| BOMF - S CAP EUR H | Oct-16 | Jan-24 | 0.18% | | 0.51% | 1.97% | 1.93% | 2.94% | 1.15% | 1.96% | 0.91% | 4.49% |
| BOMF - C EUR DIS HDG | Sep-23 | Jan-24 | 0.44% | | | | | | | | | 1.73% |
| BOMF - BO EUR CAP HDG | Nov-23 | Jan-24 | 0.54% | | | | | | | | | 1.04% |
| BOMF - C EUR CAP HDG | Nov-23 | Jan-24 | 0.45% | | | | | | | | | 0.87% |
| EMF AGmvK (FO/T EUR) | Oct-19 | Jan-24 | 0.22% | | | | | 0.51% | 1.24% | 3.52% | 2.36% | 3.73% |
| EMF AGmvK (I/T EUR) | Nov-20 | Jan-24 | 0.29% | | | | | | -0.67% | 7.95% | 7.55% | 8.53% |
| I-AM I EUR A | Jan-15 | Jan-24 | -0.02% | -11.21% | -0.24% | 3.24% | -4.24% | 3.69% | -0.68% | 0.90% | 0.92% | 6.85% |
| I-AM I EUR T | Jan-15 | Jan-24 | 0.20% | -7.12% | 2.02% | 6.04% | -0.60% | **5.44%** | 2.19% | 2.55% | 3.18% | **9.12%** |
| I-AM R EUR A | Jan-15 | Jan-24 | -0.03% | -11.26% | -0.45% | 3.12% | -4.37% | 3.66% | -0.75% | 0.85% | 0.83% | 6.65% |
| I-AM R EUR T | Jan-15 | Jan-24 | 0.15% | -7.67% | 1.52% | 5.45% | -1.13% | 4.87% | 1.64% | 2.03% | 2.61% | 8.51% |
| rA Micro&SME Fin D A | Jan-15 | Jan-24 | -0.12% | -11.12% | -5.91% | **10.97%** | -4.91% | -0.93% | **9.19%** | -6.31% | -6.89% | 7.17% |
| rA Micro&SME Fin D I EUR | Jan-15 | Jan-24 | 0.01% | -0.99% | -2.84% | -2.25% | 0.16% | 1.53% | 0.53% | 1.41% | -0.48% | 4.03% |
| rA Micro&SME Fin D I II EUR | Nov-15 | Jan-24 | 0.07% | 0.35% | 0.10% | -2.13% | 0.42% | 1.78% | 0.67% | 1.65% | -0.23% | 4.30% |
| rA Micro&SME Fin Leadrs S EUR | Jan-15 | Jan-24 | 0.16% | 2.30% | 0.93% | 0.57% | 3.07% | 2.17% | -0.07% | 4.18% | -1.45% | 4.97% |
| rA Gl Micro&SME Fin H II EUR | Jan-15 | Jan-24 | 0.04% | 1.27% | -0.96% | 0.72% | 0.90% | 2.39% | -0.29% | 3.14% | -4.08% | 1.61% |
| rA Gl Micro&SME Fin H EUR | Jan-15 | Jan-24 | 0.01% | 0.91% | -1.31% | 0.35% | 0.53% | 2.04% | -0.64% | 2.77% | -4.41% | 1.25% |
| **Mean of MFIFs** | | | **0.12%** | **-0.59%** | **1.51%** | **-0.46%** | **0.67%** | **1.75%** | **-0.79%** | **2.52%** | **1.03%** | **3.63%** |
| ***Benchmark Indices EUR*** | | | | | | | | | | | | |
| MSCI World | | | 0.77% | 10.07% | 9.32% | 5.51% | -5.54% | 29.22% | 7.54% | 29.93% | -12.89% | 18.76% |
| MSCI EM | | | 0.21% | -5.69% | 12.99% | 18.19% | -12.15% | 19.33% | 9.10% | 3.02% | -16.49% | 4.64% |
| FTSE WGBI | | | 0.08% | -3.50% | 1.96% | 7.57% | -0.75% | 6.02% | 10.24% | -6.86% | -17.72% | 5.68% |

*Source: Own calculations based on EIKON data*

Figures 2. and 3. present the performance of returns (cumulative returns) of the EUR- and USD-denominated funds and all benchmark indices. To capture the progress of these microfinance funds, I have created an equally weighted portfolio of microfinance investment funds from the sample according to their currencies. So, in total, four portfolios are presented (EUR, USD, CHF, and GBP Portfolios). The portfolio is rebalanced every time a new fund is launched or liquidated, so the position of each fund in the portfolio is equal. From portfolios, funds of funds are excluded as they are investing in funds. A short sale is not allowed, and borrowing funds with the expectation that the asset's net asset value will fall is restricted. All data are rebased to 100 on the graph start date. Recall from section 7.1. currency-converted data for all benchmark indices is collected for each trading currency in the sample so that currency volatility can be accounted for. Figures for the historical performance of CHF and GBP portfolios are given in the Appendix in Figures A.1. and A.2.

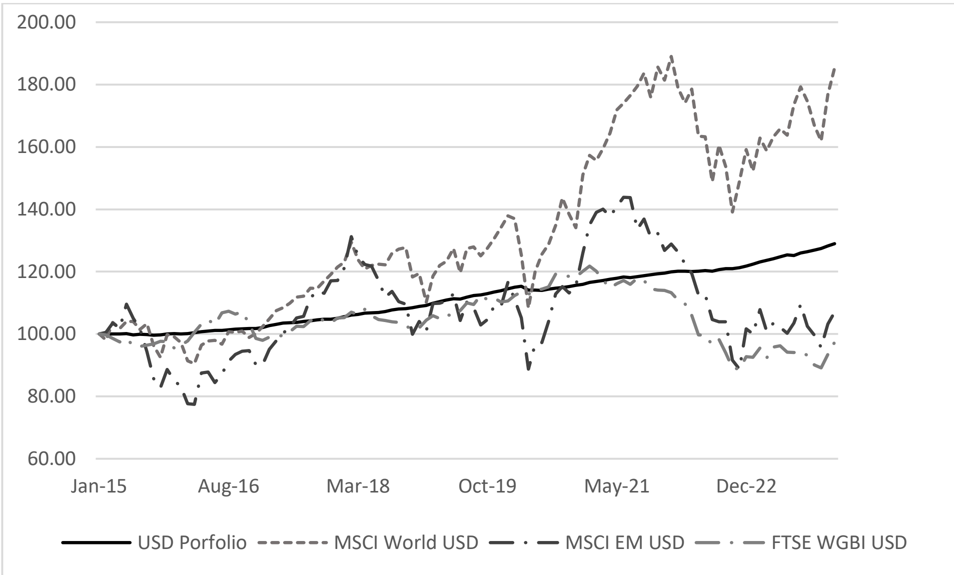
Based on the information provided in the figures, it is apparent that the returns of the funds for all trading currencies exhibit an upward trend and lower levels of fluctuation compared to benchmark indices. All portfolios showed modest and stable performance during the studied period. Moreover, USD and GPB portfolios had better performance compared to EUR and CHF portfolios in the last few years. The MSCI World Index, which is a global equity index, has a higher growth level, which is reflected by generally higher risk and return of the global equities. The MSCI Emerging Markets equity index, similar to the MSCI World index, is quite volatile, with noticeable ups and downs. It is typical for emerging markets as they have higher risks from economic instability.

**Figure 2.** Historical Performance of EUR Microfinance Portfolio against Benchmark Indices.




*Source: Own calculations based on EIKON data*

**Figure 3.** Historical Performance of USD Microfinance Portfolio against Benchmark Indices.




*Source: Own calculations based on EIKON data*

The MSCI World Incex outperformes all the portfolios, especially in the last period. On the other hand, studied portfolios consist of lower risk assets compared to equity indices, given its smoother growth tendency and lower returns. Nevertheless, analyzing separately individual funds would express their stable returns along the studied period.

The stable performance of MFIFs is evident especially during COVID-19 pandemic. There is a noticeable drop in the performance of all indices during early stage of COVID-19 pandemic, as this reflects countries' national lockdowns, which had disrupted the economies. The MSCI World and MSCI EM recovered quite rapidly in the following monthes. The FTSE WGBI, which represents bond market experienced more volatility after the initial pandemic shock. Since the studied sample consist of majority of fixed-income and only a few mixed allocation funds, it would be more fair if we compare these funds to the FTSE WGBI, however, for the full picture to compare to the equity indices is also very important.

Looking at the mean monthly returns, MFIFs have stable performance. This can be due to the reason that they are not directly linked to the volatile equity markets. Additionally, microfinance institutions mainly provide loans to the undeserved population, which have small businesses which are focused on essential goods and services. Furthermore, MFIFs are often diversified by geographical regions as they invest in various developing countries across globe. As a result, even though there were challenges, microfinance investment funds demonstrated positive resilience in market disruptions compared to the broader market.

### 9.3. Summary of Matched Pair Analysis

Table 3. provides key performance statistics of the monthly rate of returns of USD- and EUR-denominated socially responsible investment funds and microfinance investment funds on an individual level from January 2015 to January 2024.

The mean monthly returns of EUR-denominated SRI funds range from -0.08% to 0.70%, and for the USD-denominated SRI funds, from -0.16% to 0.23%. The mean monthly return for the selected EUR-denominated MFIFs ranges from -0.04% to 0.29%, and for USD-denominated MFIFs, from 0.00% to 0.39%.

Regarding volatility, microfinance investment funds have a lower standard deviation than socially responsible investment funds. For instance, in the case of EUR-denominated funds, BNP Paribas Green Tigers Classic EUR Cap has a standard deviation of 4.53%, while the highest for MFIFs has Triodos B Dis EUR – 1.18%. Similar results are for the USD-denominated funds.

**Table 3.** Descriptive Statistics – Matched pairs EUR- and USD-denominated funds.
Mean, Minimum, and Maximum monthly rate of returns per trading currency and corresponding standard deviation for all matched pairs.

| **SRIs** | **Mean** | **Stand. Dev.** | **Min** | **Max** | **N** |
|---|---|---|---|---|---|
| ***Panel A: EUR-denominated funds*** | | | | | |
| BNP Paribas Green Tigers Classic EUR Cap | 0.29% | 4.53% | -11.99% | 10.96% | 109 |
| BNP Paribas Selection Patrimoine Res. P | 0.02% | 1.52% | -6.57% | 3.07% | 109 |
| ERSTE RESP. BOND V | -0.04% | 1.29% | -4.17% | 4.53% | 109 |
| ERSTE RES. BOND EURO CORP A | -0.08% | 1.43% | -7.38% | 4.24% | 109 |
| Mirova Euro Green&Sust. Corp Bond Fund IAE | 0.01% | 1.53% | -8.03% | 4.15% | 109 |
| Swisscanto (LU) PF Resp Balance (EUR) AA | 0.21% | 2.28% | -9.04% | 5.34% | 109 |
| Swisscanto (LU) PF Resp Select (EUR) BT | 0.17% | 1.69% | -6.56% | 4.10% | 109 |
| Swisscanto (LU) PF Resp Select (EUR) NT | 0.16% | 2.06% | -4.18% | 4.17% | 64 |
| Warburg Invest Resp. - Corporate Bond I | -0.06% | 1.55% | -9.05% | 3.46% | 105 |
| WATERLOO SICAV-SIF Gl SRI Inv R DEUR | 0.70% | 3.31% | -8.10% | 5.80% | 46 |
| | | | | | |
| ***Panel B: USD-denominated funds*** | | | | | |
| Appleseed Fund | 0.23% | 4.69% | -23.14% | 15.09% | 109 |
| Azzad Wise Capital Fund | 0.03% | 0.63% | -3.21% | 2.24% | 109 |
| Brown Advisory Sustainable Bond Fund | -0.16% | 1.79% | -5.06% | 3.92% | 66 |
| Domini Impact Bond Fund | -0.10% | 1.48% | -4.82% | 4.50% | 109 |
| Green Century Balanced Fund | 0.08% | 3.60% | -7.19% | 7.14% | 38 |
| Parnassus Fixed Income Fund | -0.09% | 1.47% | -4.78% | 4.55% | 109 |
| Praxis Impact Bond Fund A | -0.09% | 1.38% | -4.50% | 4.21% | 109 |

| **MFIFs** | **Mean** | **Stand. Dev.** | **Min** | **Max** | **N** |
|---|---|---|---|---|---|
| ***Panel C: EUR-denominated funds*** | | | | | |
| Triodos Z Cap EUR | 0.26% | 0.86% | -4.35% | 2.24% | 109 |
| Triodos Z Dis EUR | 0.03% | 1.16% | -4.41% | 3.31% | 109 |
| Luxembourg C Acc | 0.10% | 0.20% | -0.17% | 0.79% | 109 |
| I-AM Vision I EUR (A) | -0.02% | 0.60% | -3.18% | 0.59% | 109 |
| I-AM Vision R EUR (A) | -0.04% | 0.52% | -3.19% | 0.54% | 109 |
| Triodos B Dis EUR | 0.02% | 1.18% | -4.40% | 3.26% | 109 |
| GLS B | -0.01% | 0.58% | -2.64% | 0.75% | 97 |
| Triodos I-II Cap EUR | 0.29% | 0.97% | -4.31% | 3.37% | 81 |
| KCD-Mikrofinanzfonds - III | 0.03% | 0.65% | -4.17% | 1.88% | 108 |
| ERSTE EUR R01 VTIA | 0.16% | 0.17% | -0.20% | 0.51% | 45 |
| | | | | | |
| ***Panel D: USD-denominated funds*** | | | | | |
| rA Micro & SME Fin Leadrs I USD | 0.30% | 0.54% | -2.21% | 2.21% | 109 |
| Finethic S USD | 0.00% | 0.03% | -0.18% | 0.18% | 109 |
| EMF AGmvK R T | 0.36% | 0.13% | -0.08% | 0.55% | 56 |
| I-AM I USD T | 0.36% | 1.10% | -5.91% | 2.97% | 109 |
| rA Micro & SME Fin Leadrs I-IV USD | 0.39% | 0.53% | -0.90% | 1.85% | 35 |
| rA Micro & SME Fin Debt I II USD | 0.23% | 0.40% | -2.08% | 0.77% | 99 |
| BOMF - P USD Cap | 0.28% | 0.13% | -0.07% | 0.57% | 109 |

*Source: Own calculations based on EIKON data*

## 10. Results of the CAPM Regression

In this section I will present results of the CAPM regression model and risk-adjusted return measures for four portfolios and at an individual level separately. Afterward, the results of the matched pair analysis are presented.

### 10.1. Results of the Portfolios

As shown in Table 4. first, the regression for all portfolios is performed. The beta coefficients for all regressions are positive and close to zero, except of beta of EUR and CHF portfolios, which have negative betas against FTSE WGBI. These portfolios show particularly low betas with the equity indices with statistically high significant levels. USD and GBP portfolios also showed low betas. However, the GBP portfolio's betas are not highly significant. For the USD portfolio, betas are significant at least a ten percent level.

In relation to the FTSE WGBI index, the EUR portfolio's beta is negative, which is highly significant, suggesting that the EUR portfolio moves counter to the benchmark index. On the contrary, the USD portfolio, which is also highly significant, indicates that this portfolio is less volatile compared to the bond index and moves in the same direction. The alphas for all the portfolios in relation to three different indices are similar. Close to zero alpha was achieved by EUR and CHF portfolios in relation to all indices.

In the case of R-squared, all the results are below 10%, except the R-squared of USD portfolios, which are slightly higher than 10% in relation to the MSCI WORLD and MSCI EM indexes. This means that market movements are only explained with a small portion of the performance of these portfolios.

**Table 4.** Portfolio Regression of the MFIFs in relation to the benchmark indices.
The beta coefficient, Jensen's alpha, R-squared, Treynor ratio and Sharpe ratio are presented.

| MSCI WORLD | | | | | | |
|---|---|---|---|---|---|---|
| | **Beta** | | **alpha** | | **$R^2$** | **Treynor** |
| USD portfolio | 0.021 | * | 0.21% | *** | 15.36% | 0.077 |
| EUR portfolio | 0.025 | *** | 0.03% | | 9.73% | 0.021 |
| CHF portfolio | 0.010 | *** | 0.02% | | 5.12% | 0.028 |
| GBP portfolio | 0.021 | | 0.12% | * | 1.23% | 0.066 |

| MSCI EM | | | | | | |
|---|---|---|---|---|---|---|
| | **Beta** | | **alpha** | | **$R^2$** | **Treynor** |
| USD portfolio | 0.023 | *** | 0.20% | *** | 24.20% | 0.069 |

| | | | | | | |
|---|---|---|---|---|---|---|
| EUR portfolio | 0.025 | *** | 0.04% | * | 9.95% | 0.021 |
| CHF portfolio | 0.010 | *** | 0.03% | ** | 5.07% | 0.029 |
| GBP portfolio | 0.014 | - | 0.13% | ** | 0.74% | 0.101 |

| FTSE WGBI | | | | | | |
|---|---|---|---|---|---|---|
| | **Beta** | | **alpha** | | **$R^2$** | **Treynor** |
| USD portfolio | 0.037 | *** | 0.19% | *** | 8.85% | 0.044 |
| EUR portfolio | -0.021 | *** | 0.05% | * | 1.53% | -0.024 |
| CHF portfolio | 0.011 | - | 0.02% | - | 0.83% | 0.027 |
| GBP portfolio | -0.020 | - | 0.14% | ** | 0.55% | -0.070 |

| Sharpe ratio | | | |
|---|---|---|---|
| USD portfolio | 0.673 | CHF portfolio | 0.144 |
| EUR portfolio | 0.154 | GBP portfolio | 0.209 |

*** p<0.01 ** p<0.05 * p<0.1

*Source: Own calculations based on EIKON data*

The Table 4. displays the Sharpe ratio for all the portfolios. USD portfolio has highest Share ratio (0.673) compared to ther portfolios and benchmark indices. The Sharpe ratios for all portfolios are equal or little bit higher compared to corresponding benchmark indices' Sharpe ratios.

In terms of the Treynor ratio, in relation to the MSCI WORLD index, the USD portfolio has the highest Treynor ratio (0.076), followed by the GBP portfolio (0.066). In relation to MSCI EM GBP portfolio has the highest Treynor ratio (0.1), followed by the USD portfolio (0.069). Finally, in relation to FTSE WGBI, the highest Treynor ratio was posted by the USD portfolio, while the negative Treynor ratio was achieved by the EUR and GBP portfolios, which was expected due to their negative betas.

## 10.2. Results on the Individual level

The individual CAPM regressions of the funds are presented in Tables A.3. and A.4. in the Appendix. In relation to the MSCI WORLD index, the beta coefficient ranges from -0.0311 to 0.1352; almost half of the results are significant. For GBP-denominated funds, only betas of the three funds are significant with the longer period of operation on the market. The beta values for CHF-denominated funds are mostly positive but low; only a few of them are significant. The sub-funds I-AM Vision R CHF (A) has a higher beta coefficient than its peers. USD-denominated funds have less than half of the beta coefficients positive, with few of them at significant levels. EUR-denominated funds also exhibit mostly positive betas close to zero with significant levels.

When comparing alphas, more than half of the results are significant, ranging from -0.32% to 0.69% in relation to the MSCI WORLD index. R-squared showed high variation. Out of 130 funds, 119 had lower values than 15%.

The Sharpe ratio and Treynor ratio in relation to all indices are also represented in Tables A.3. and A.4. in the Appendix. 91 sub-funds out of 130 have a positive Sharpe ratio. Some of the funds had a very large Sharpe ratio. The Treynor ratio in relation to the MSCI WORLD index worries between -6.305 and 5.22 (there are extreme values, for example, -18.789. However, this sub-fund is newly established). Most of the ratios are close to zero.

The results were relatively similar for the other benchmark indices. The variables on an individual level are more or less similar to the portfolios' results with some exaggerated coefficients.

## 10.3. Results of the Matched Pair Analysis

The matched pair analyses for the pairs of EUR- and USD-denominated funds in relation to the FTSE WGBI fixed-income index are represented in Table 5. For the other benchmarks, the results are presented in Table A.5. in the Appendix.

**Table 5.** Matched pairs - results of the CAPM regression.

| FTSE WGBI | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ***EUR-denominated funds*** | **Beta** | | **alpha** | | **$R^2$** | **Treynor** | **Sharpe** | **N** |
| BNP P Green Tigers Classic EUR Cap | 0.5694 | *** | 0.29% | - | 6.06% | 0.0046 | 0.0572 | 109 |
| Triodos Z cap EUR | -0.1002 | ** | 0.22% | - | 5.28% | -0.0229 | 0.2681 | 109 |
| BNP P Selection Patrimoine Res. P | 0.2812 | *** | 0.00% | ** | 13.10% | -0.0004 | -0.0082 | 109 |
| Triodos Z dis EUR | -0.1304 | * | -0.01% | - | 4.88% | 0.0003 | -0.0030 | 109 |
| ERSTE RESP. BOND V | 0.4352 | - | -0.05% | - | 44.01% | -0.0017 | -0.0572 | 109 |
| Luxembourg C Acc | -0.0070 | - | 0.06% | * | 0.48% | -0.0925 | 0.3282 | 109 |
| ERSTE RES. BOND EURO CORP A | 0.4132 | * | -0.10% | - | 31.96% | -0.0029 | -0.0835 | 109 |
| I-AM Vision I EUR (A) | 0.0386 | - | -0.06% | - | 1.59% | -0.0151 | -0.0969 | 109 |
| Mirova E Green&Sust. Corp Bd Fd IAE | 0.4530 | * | 0.00% | * | 33.69% | -0.0006 | -0.0165 | 109 |
| I-AM Vision R EUR (A) | 0.0208 | - | -0.07% | * | 0.63% | -0.0351 | -0.1422 | 109 |
| Swisscanto PF Resp Balance AA | 0.3445 | ** | 0.19% | - | 8.80% | 0.0051 | 0.0768 | 109 |
| Triodos B dis EUR | -0.1051 | * | -0.02% | - | 3.06% | 0.0013 | -0.0115 | 109 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Swisscanto PF Resp Select BT | 0.3952 | * | 0.16% | * | 21.00% | 0.0035 | 0.0813 | 109 |
| GLS B | -0.0676 | * | -0.06% | - | 5.75% | 0.0083 | -0.0973 | 97 |
| Swisscanto PF Resp Select NT | 0.6430 | *** | 0.45% | ** | 61.92% | 0.0007 | 0.0228 | 64 |
| Triodos I-II cap EUR | -0.1318 | *** | 0.23% | ** | 7.60% | -0.0183 | 0.2498 | 81 |
| Warburg Invest Resp. - Corp Bond I | 0.4306 | *** | -0.08% | - | 30.51% | -0.0023 | -0.0642 | 105 |
| KCD-Mikrofinanzfonds - III | 0.0057 | ** | -0.01% | - | 0.03% | -0.0119 | -0.0106 | 108 |
| WATERLOO Gl SRI Inv R DEUR | 0.7846 | *** | 0.94% | ** | 32.74% | 0.0077 | 0.1830 | 46 |
| ERSTE EUR R01 VTIA | 0.0060 | - | 0.07% | * | 0.73% | 0.1071 | 0.3758 | 45 |

| ***USD-denominated funds*** | **Beta** | | **alpha** | | **$R^2$** | **Treynor** | **Sharpe** | **N** |
|---|---|---|---|---|---|---|---|---|
| Appleseed Fund | 0.6512 | - | 0.22% | - | 7.41% | 0.0028 | 0.0382 | 109 |
| MicroandSME Finance Leadrs I USD | 0.0249 | - | 0.26% | ** | 0.83% | 0.1012 | 0.4711 | 109 |
| Azzad Wise Capital Fund | 0.1667 | * | -0.01% | - | 27.25% | -0.0014 | -0.0363 | 109 |
| Finethic S USD | -0.0004 | - | -0.05% | * | 0.07% | 1.2022 | -1.6727 | 109 |
| Brown Advisory Sustainable Bd Fd | 0.6996 | - | -0.11% | - | 71.56% | -0.0030 | -0.1175 | 66 |
| EMF AGmvK R T | -0.0027 | - | 0.31% | *** | 0.24% | -1.1359 | 2.4326 | 56 |
| Domini Impact Bond Fund | 0.6167 | - | -0.11% | - | 66.64% | -0.0024 | -0.0996 | 109 |
| I-AM I USD T | 0.2050 | *** | 0.33% | * | 13.40% | 0.0154 | 0.2883 | 109 |
| Green Century Balanced Fund | 1.0190 | - | 0.19% | * | 51.04% | -0.0006 | -0.0171 | 38 |
| MicroandSME Fin Leadrs I-IV USD | 0.0501 | - | 0.29% | *** | 6.04% | 0.0489 | 0.4634 | 35 |
| Parnassus Fixed Income Fund | 0.6377 | - | -0.10% | * | 72.43% | -0.0022 | -0.0956 | 109 |
| MicroandSMEFinanceDebt I II USD | -0.0107 | * | 0.18% | *** | 0.29% | -0.1652 | 0.4369 | 99 |
| Praxis Impact Bond Fund A | 0.5960 | * | -0.10% | * | 72.19% | -0.0023 | -0.1014 | 109 |
| BOMF - P USD Cap | 0.0190 | *** | 0.23% | *** | 7.66% | 0.1202 | 1.6972 | 109 |

*** $p<0.01$ ** $p<0.05$ * $p<0.1$

*Source: Own calculations based on EIKON data*

The beta coefficients differ in the case of MFIFs and SRIs, as the betas are close to zero in the case of microfinance investment funds, while betas of the socially responsible investment funds are higher. In the case of Jensen's alpha, both MFIFs and SRIs show varying alpha values. The majority of the SRIs Jensen's alphas are negative.

The Sharpe ratios and Treynor ratios vary for the funds. However, MFIFs have higher ratios compared to their pairs in most cases.

## 11. Discussion

This section presents the interpretation of the results in relation to the hypotheses. In the first part, I discuss individually and for the portfolios, and finally, pairwise evaluation is presented.

The analysis of the beta coefficient revealed that the majority of the microfinance investment funds' beta values were around zero, supporting expectations of a low correlation with benchmark indices and less volatility. Summing up the findings from the data analysis for each benchmark category, a mix of results was identified as some funds have positive beta while about the same number of the funds show negative beta values. The presence of both betas suggests that while some microfinance investment funds follow the market trends with low volatility, others show counter-cyclical behavior. This could potentially offer diversification benefits to the investors. The variation in the beta coefficient can be a reflection of the complex characteristics of the MFIFs, such as the type of investment each microfinance investment fund holds, the economic environment these funds operate in, their geographic focus, and whether the loans are provided in local or hard currency. A thorough analysis of these characteristics should be the subject of future studies. In terms of the low correlation with the developed markets, the results were in line with the previous studies.

At the portfolio level, all four portfolios demonstrated low beta coefficients when measured against different indexes, which is in line with the expectations. The funds are less volatile compared to both equity and fixed-income market indices. Only EUR and GBP portfolios have a negative beta in relation to FTSE WGBI, which is a fixed-income emerging market index. Overall, the result of the regression is in line with Janda and Svárovská (2010), and Janda, Rausser, and Svárovská (2014), Brandt and Necksten (2016) findings. But for the portfolios, we cannot conclude that all the portfolios move in opposite directions of the market, as concluded by Janda, Rausser, and Svárovská (2014).

The regression analysis and observed R-squared values are relatively low for most of the funds and for all four portfolios, only with some exceptions. This outlines that the returns of the microfinance investment funds are not highly correlated with the market indices. The low R-square is in line with the expectation that these MFIFs provide diversification benefits.

Future research could explore microeconomic conditions and specific factors that influence the performance of microfinance investment funds.

The Sharpe ratio is a key metric to evaluate the risk-adjusted performance of the investment. The performance of single funds varies significantly. However, the majority of the Sharpe ratios are positive. This is consistent with the hypothesis. Which fund to invest in should be considered carefully by potential investors.

Some of the funds posted a negative Treynor ratio, which is also known as the reward-to-volatility ratio. These funds might not be compensating investors sufficiently for their exposure to market risk. The sensitivity of the Treynor ratio to the beta coefficient may result in instability and imprecise performance. According to Hubner (2005), this sensitivity can result in misleading assessment.

The analyses of the portfolios' Sharpe ratio reveal that investing in microfinance funds does not worsen the risk-adjusted returns. The USD portfolio, which has a higher Sharpe ratio, shows that it has better performance relative to the level of risk compared to other portfolios. However, as a result, the inclusion of these funds can diversify the portfolio.

The analysis of Jensen's alpha reveals that many funds have positive Jensen's alpha, indicating that they have outperformed their expected returns based on the risk level. However, in some fund cases, negative Jensen's alpha can be an indication of their focus on social impact over purely financial gain. The main idea of the microfinance sector is financial inclusion, providing capital to underserved populations. For the investors, this may mean that while microfinance investment funds can diversify their portfolios, they also consider the social impact and ethical contribution to society. Overall, the negative Jensen's alpha is not necessarily a sign of poor performance. It should be noted that most positive alphas are statistically significant, while negative alphas are not.

In the case of portfolio analysis, Jensen's alphas of most portfolios were, on average, significant. The results suggest that investor who decides to include microfinance investment funds in their portfolios in terms of opportunity cost don't pay as they are investing in socially responsible assets. So, the results confirm the hypotheses.

In this part, I also analyze the results of the matched pair analysis of microfinance investment funds and socially responsible investment funds, focusing on the beta coefficient and Sharpe ratio to test the hypotheses. In almost all pairs with relation to different benchmarks, microfinance investment funds provide better diversification benefits than socially responsible investment funds. The results indicate that SRIs have a higher market correlation, and it is consistent with their diversified investment strategies in developed markets. Some SRIs have close to one beta coefficient, which outlines that they move with the market.

Looking at the Sharpe ratios, the results support the relevant hypothesis, indicating that MFIFs have higher Sharpe ratios than SRIs. This suggests that microfinance investment funds have better risk-adjusted returns. This is due to the stable nature and lower volatility of the microfinance sector.

The Treynor ratio varies significantly for both MFIFs and SRIs. Both types of funds have instances of strong and weak Treynor ratios, so the investor should be careful while selecting the individual fund.

## 12. Robustness

As a result of the simple, straightforward regression for calculating only the beta coefficient, the result was similar to the CAPM regression, including Jensen’s alpha in terms of magnitude, sign, and significance of the fund’s market sensitivity. So, it was important to understand the fund's sensitivity to market movements without considering its ability to generate excess returns.

To ensure the robustness and generalizability of the findings of this dissertation, I used different benchmark indices, due to the reason that they capture different aspects of the financial markets. For instance, the MSCI World Index represents the developed markets, and the FTSE WGBI represents the fixed-income market. This index is very important as the majority of the studied microfinance investment funds are fixed-income funds. The MSCI Emerging Market Index was also included, as it provides insights into emerging financial markets. So, I tried to cover all the essential characteristics and spectrums of the markets and investment environments, as these benchmarks reflect different risk-return profiles and market dynamics.

## 13. Conclusion

This dissertation evaluates the performance of microfinance investment funds and determines their suitability for portfolio diversification. Through the comprehensive analysis, the aim of this study is to compare microfinance investment funds to the different types of market indices and other socially responsible investment funds. Moreover, to understand the unique characteristics of these funds and the potential benefits that they can bring to the investors who are seeking risk-adjusted return together with social contribution.

The historical data on net asset value per share of 17 microfinance investment funds were collected, in total 130 sub-funds in four different trading currencies, from January 2015 to January 2024. The analysis was performed on the individual and portfolio levels according to their trading currencies. The results of the CAPM regression analysis, specifically the beta coefficient, revealed that MFIFs have a low correlation with the benchmark indices and are less volatile than the developed and developing markets. So, it may have diversification benefits for the investors. After analyzing four portfolios with different trading currencies, the low beta coefficient was revealed at the portfolio level. Positive Jensen's alpha for individual funds also indicated outperformance relative to the expected returns. However, there were negative Jensen's alphas, often statistically insignificant, which may be the reflection of the social impact focus of some funds rather than poor financial performance. The portfolio evaluation measures, such as the Sharpe ratio, showed that MFIFs generally had positive risk-adjusted returns.

Furthermore, matched pair analyses confirmed that microfinance investment funds provide diversification benefits compared to other socially responsible investment funds, they are less correlated to the market and they are also beneficial in terms of measures of risk-adjusted return.

The study period includes the COVID-19 pandemic, and the historical performance analyses per annum revealed that microfinance investment funds managed to maintain stable performance during critical periods and under severe macroeconomic conditions. This resilience highlights that MFIFs are reliable asset classes during market uncertainties.

As mentioned at the beginning, one of the main objectives of this dissertation is to test the results of previous similar studies and see if their findings are still valid in recent evaluations of the microfinance sector. In this dissertation, similar positive tendencies were captured. Overall, the microfinance investment funds are worth to be invested for investors, with all the positive characteristic mentioned above. It should be noted that majority of these funds are still young, and so many modifications and novelties are implemented every year in this sector. Evaluating the performance, especially social impact, and how these funds will evolve in the future will be interesting.

The limitation of this dissertation is its focus only on fixed-income and mixed-allocation open-end funds. The reason behind this is the unavailability of data on equity funds. Another limitation is regarding benchmark indices. Comparing fixed-allocation funds to the equity indices and mixed-allocation funds to the equity and fixed-income indices has its drawbacks due to the fundamental differences in the nature, risk profile, and performance characteristics. To overcome this problem, I used several benchmark indices as a robustness check to evaluate if there was any difference in the results. The results were similar; however, including more tailored benchmark indices would be preferable.

These microfinance investment funds require more research as this field is still young and in the development phase. Suggestions for future studies would be to narrow the study to the geographic area; also, understanding the social impact of these funds on society requires more in-depth analysis, which would be an interesting continuation of this study.

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## APPENDIX

### Key Performance Statistics of the Microfinance Investment Funds

**Table A. 1.** Descriptive Statistics – CHF- and GBP-denominated MFIFs.

Mean, Minimum, and Maximum monthly rate of returns per trading currency and corresponding standard deviation for CHF- and GBP-denominated funds/sub-funds and also for benchmark indices over the studied period. The mean of MFIFs are calculated excluding funds of funds.

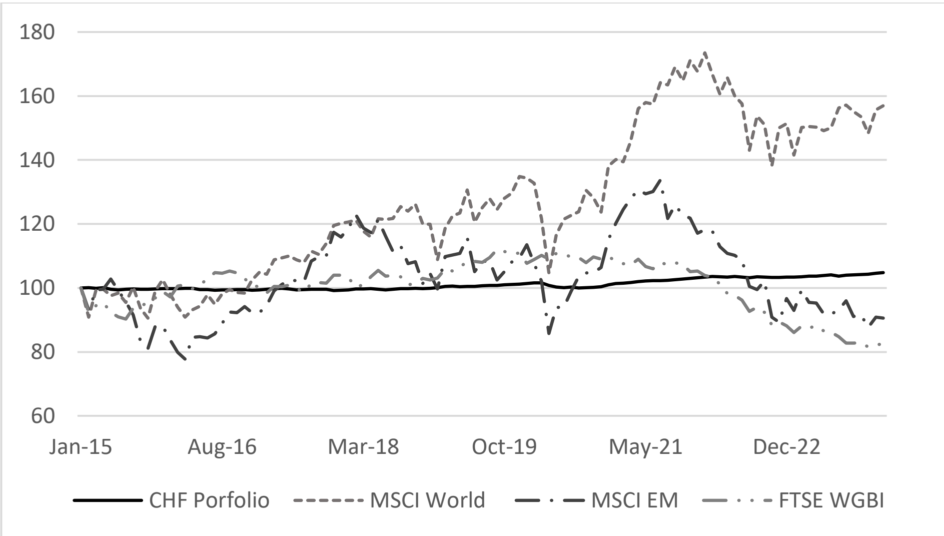
| MFIFs | Mean | Stand. Dev. | Min | Max | N |
|---|---|---|---|---|---|
| ***Panel C: CHF-denominated funds*** | | | | | |
| BOMF - D CHF Hgd | 0.09% | 0.10% | -0.37% | 0.31% | 92 |
| BOMF - I CHF Cap | 0.13% | 0.10% | -0.35% | 0.34% | 109 |
| BOMF - N CHF Cap | 0.11% | 0.10% | -0.36% | 0.32% | 109 |
| BOMF - P CHF Cap | 0.07% | 0.10% | -0.40% | 0.28% | 109 |
| BOMF - S CAP CHF H | 0.13% | 0.10% | -0.33% | 0.35% | 88 |
| EMF AGmvK (FO/T CHF) | 0.19% | 0.11% | -0.18% | 0.39% | 34 |
| EMF AGmvK (I/T CHF) | 0.22% | 0.42% | -1.48% | 1.96% | 39 |
| EMF AGmvK CHF I/A CHF | 0.07% | 0.58% | -2.18% | 0.41% | 34 |
| EMF AGmvK D A CHF | 0.05% | 0.45% | -1.89% | 0.39% | 52 |
| EMF AGmvK D T CHF | 0.02% | 0.43% | -2.02% | 0.37% | 54 |
| I-AM I CHF T | 0.27% | 1.05% | -6.15% | 2.56% | 85 |
| I-AM R CHF T | 0.12% | 1.09% | -6.19% | 2.59% | 109 |
| I-AM Vision I CHF (A) | -0.17% | 0.82% | -3.49% | 0.56% | 109 |
| I-AM Vision I CHF (T) | 0.07% | 0.18% | -1.01% | 0.56% | 109 |
| I-AM Vision R CHF (A) | -0.16% | 0.65% | -3.08% | 0.51% | 90 |
| I-AM Vision R CHF (T) | 0.02% | 0.18% | -1.17% | 0.52% | 109 |
| I-AM Vision S-CHF (T) | 0.03% | 0.09% | -0.28% | 0.29% | 34 |
| rA Global Micro & SME Fin Fund H II CHF | -0.01% | 0.44% | -1.87% | 1.17% | 109 |
| rA Global Micro & SME Fin Fund H CHF | -0.04% | 0.44% | -1.89% | 1.14% | 109 |
| rA Micro & SME Fin Leaders S CHF | 0.10% | 0.52% | -2.41% | 1.92% | 109 |
| Triodos CHI Cap CHF | 0.36% | 2.07% | -8.10% | 8.82% | 43 |
| rA Micro & SME Fin Debt I CHF | -0.05% | 0.65% | -4.08% | 0.47% | 109 |
| rA Micro & SME Fin Debt I II CHF | 0.00% | 0.54% | -3.61% | 0.49% | 109 |
| rA Micro & SME Fin Debt I-IV CHF | 0.10% | 0.34% | -1.79% | 0.51% | 49 |
| Finethic C CHF | 0.01% | 0.14% | -0.33% | 0.46% | 109 |
| Finethic II CC | -0.36% | 1.84% | -13.86% | 1.23% | 68 |
| **Mean MIVs** | **0.05%** | **0.52%** | | | |
| ***Benchmark Indices CHF*** | | | | | |
| MSCI World | 0.61% | 4.30% | -13.87% | 11.71% | 109 |
| MSCI EM | -0.01% | 4.49% | -16.00% | 10.11% | 109 |
| FTSE WGBI | -0.16% | 1.73% | -7.66% | 3.72% | 109 |

| MFIFs | Mean | Stand. Dev. | Min | Max | N |
|---|---|---|---|---|---|
| ***Panel D: GBP-denominated funds*** | | | | | |
| BOMF - BO GBP DIS HDG | 0.65% | 0.02% | 0.62% | 0.67% | 5 |
| BOMF - BO GBP CAP HDG | 0.65% | 0.03% | 0.62% | 0.67% | 3 |
| BOMF - C GBP DIS HDG | 0.56% | 0.02% | 0.54% | 0.59% | 5 |

| | | | | | |
|---|---|---|---|---|---|
| BOMF - D GBP Cap HDG | 0.24% | 0.13% | -0.16% | 0.59% | 92 |
| BOMF - C GBP CAP HDG | 0.56% | 0.02% | 0.54% | 0.58% | 3 |
| rA Global Micro & SME Fin Fund IV | 0.42% | 0.37% | -0.13% | 0.71% | 4 |
| Triodos KB Dis | 0.03% | 1.05% | -3.54% | 1.59% | 30 |
| Triodos KI Cap GBP | 0.24% | 0.82% | -4.32% | 2.36% | 109 |
| Triodos KI Dis GBP | 0.10% | 1.19% | -4.33% | 3.35% | 109 |
| **Mean MIVs** | **0.38%** | **0.41%** | | | |
| ***Benchmark Indices GBP*** | | | | | |
| MSCI World | 0.83% | 3.53% | -10.67% | 9.44% | 109 |
| MSCI EM | 0.29% | 4.16% | -12.88% | 12.39% | 109 |
| FTSE WGBI | 0.18% | 2.49% | -6.64% | 12.82% | 109 |

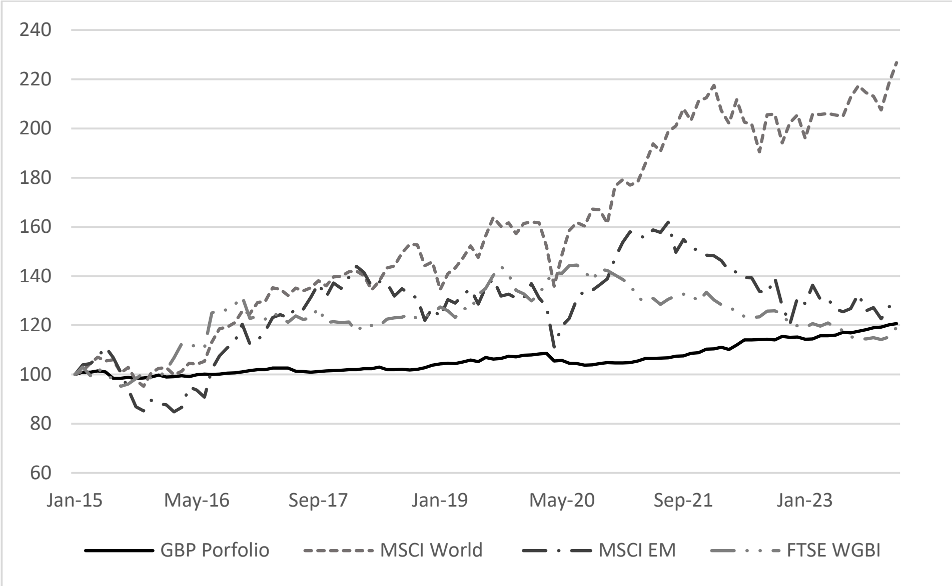
*Source: Own calculations based on EIKON data*

**Figure A. 1.** Historical Performance of CHF Microfinance Portfolio against Benchmark Indices.




*Source: Own calculations based on EIKON data*

**Figure A. 2.** Historical Performance of GBP Microfinance Portfolio against Benchmark Indices.




*Source: Own calculations based on EIKON data*

**Table A. 2.** Mean Monthly and Total p.a. Returns on USD-, CHF- and GBP-denominated Microfinance Investment Funds' share classes and Benchmark Indices.

From January 2015 to January 2024. The values in grey font represent newly established funds in the respective calendar year. The average is based on the funds which have a rate of return for the complete 12 month period (the values in black font).

| **USD-denominated funds** | **First** | **Last** | **Mean Monthly return** | **Total return p.a.** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** |
| Andban USD (Liquidated) | Feb-16 | Jan-19 | 0.20% | | 3.13% | 1.52% | 2.14% | 0.57% | | | | |
| D USD Cap | Jun-16 | Apr-19 | 0.31% | | 1.98% | 3.78% | 4.35% | 5.51% | 2.06% | 2.28% | 2.47% | 6.14% |
| S USD | Dec-21 | Jan-24 | 0.17% | | | | | | | 0.27% | 1.89% | 6.46% |
| I USD D | Feb-22 | Jan-24 | 0.18% | | | | | | | | 2.05% | 6.67% |
| H USD Cap | Feb-18 | Jan-24 | 0.35% | | | | 4.43% | 6.06% | 2.58% | 2.80% | 2.99% | 6.68% |
| I USD Cap | Jan-15 | Apr-19 | 0.33% | **3.88%** | **3.77%** | 4.03% | 4.68% | 5.84% | 2.38% | 2.59% | 2.77% | 6.46% |
| N USD Cap | Jan-15 | Jan-24 | 0.32% | 2.06% | 5.25% | 3.87% | 4.47% | 5.62% | 2.17% | 2.38% | 2.57% | 6.25% |
| P USD Cap | Jan-15 | Jan-24 | 0.28% | 3.21% | 3.09% | 3.32% | 3.99% | 5.14% | 1.70% | 1.91% | 2.10% | 5.76% |
| S CAP USD | Oct-16 | Jan-24 | 0.35% | | 0.96% | 4.32% | 4.90% | 6.05% | 2.58% | 2.80% | 2.98% | 6.68% |
| C USD CAP | Nov-23 | Jan-24 | 0.59% | | | | | | | | | 1.20% |
| BO USD CAP | Nov-23 | Jan-24 | 0.68% | | | | | | | | | 1.37% |
| C USD DIS | Sep-23 | Jan-24 | 0.58% | | | | | | | | | 2.33% |
| EMF AGmvK A | Jan-15 | Apr-19 | 0.07% | -2.46% | -0.04% | 4.02% | 1.11% | 1.39% | | | | |
| EMF AGmvK D T | Jan-15 | Jan-24 | 0.07% | -2.41% | -0.04% | 4.04% | 0.87% | 0.52% | -0.67% | 1.48% | 2.31% | 1.72% |
| EMF AGmvK D (I/A) USD | Sep-20 | Jan-24 | 0.21% | | | | | | 1.46% | 3.52% | 1.43% | 1.80% |
| EMF AGmvK FO/A USD | Mar-21 | Jan-24 | 0.21% | | | | | | | 3.56% | 1.53% | 1.79% |
| EMF AGmvK R (I/T) USD | Aug-20 | Jan-24 | 0.41% | | | | | | 1.81% | 4.68% | 4.45% | 6.24% |
| EMF AGmvK R F/T | Jan-15 | Jan-24 | 0.30% | 1.46% | 1.44% | 5.48% | 4.05% | 4.51% | 2.49% | 4.00% | 3.78% | 5.60% |
| EMF AGmvK R T | Jun-19 | Jan-24 | 0.36% | | | | | 2.60% | 2.80% | 4.42% | 4.19% | 5.95% |
| EMF AGmvK SN T | Jun-19 | Apr-20 | 0.25% | | | | | 2.50% | 0.33% | | | |
| EMF AGmvK T | Jan-15 | Apr-19 | 0.22% | 0.96% | 0.94% | 4.96% | 3.54% | 1.39% | | | | |
| I-AM I USD A | Jan-19 | Dec-23 | 0.34% | | | | | 6.43% | 0.81% | 1.54% | 2.75% | 9.31% |
| I-AM I USD T | Jan-15 | Jan-24 | 0.36% | -6.54% | 3.53% | 8.79% | 2.91% | **8.81%** | 3.81% | 3.43% | 5.13% | 11.68% |
| I-AM R USD T | Jan-15 | Jan-24 | 0.32% | -7.17% | 3.09% | 8.31% | 2.48% | 8.16% | 3.46% | 2.45% | **4.56%** | 11.06% |
| rA Micro&SME Fin D I II USD | Nov-15 | Jan-24 | 0.23% | 0.56% | 1.43% | -0.25% | 3.20% | 4.86% | 2.03% | 2.56% | 1.84% | 6.34% |
| rA Micro&SME Fin Leadrs I USD | Jan-15 | Jan-24 | 0.30% | 2.95% | 2.12% | 2.48% | **6.08%** | 5.25% | 1.27% | **5.00%** | 0.55% | 7.01% |
| rA Micro&SME Fin Leadrs I-IV | Mar-21 | Jan-24 | 0.39% | | | | | | | 4.94% | 0.96% | 7.43% |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| rA Gl Micro&SME Fin Fund II USD | Jan-15 | Jan-24 | 0.19% | 1.90% | 0.19% | 2.66% | 3.82% | 5.44% | 1.01% | 3.93% | -2.16% | 3.54% |
| rA Gl Micro&SME Fin Fund B | Jan-15 | Jan-24 | 0.16% | 1.54% | -0.17% | 2.28% | 3.42% | 5.10% | 0.65% | 3.56% | -2.51% | 3.19% |
| I-AM Vision - I USD (A) | Apr-15 | Jan-24 | 0.11% | 1.42% | 1.49% | -0.64% | 2.38% | 2.24% | 0.33% | 0.78% | 0.58% | 2.53% |
| I-AM Vision - I USD (T) | Jan-15 | Jan-24 | 0.26% | 2.01% | 2.96% | 2.26% | 3.88% | 4.18% | 2.27% | 2.66% | 2.94% | 4.90% |
| I-AM Vision - R USD (A) | Jul-16 | Jan-24 | 0.11% | | 1.04% | 0.70% | 2.33% | 2.13% | 0.26% | 0.69% | 0.50% | 2.43% |
| I-AM Vision - R USD (T) | Jan-15 | Jan-24 | 0.21% | 1.40% | 2.50% | 1.70% | 3.33% | 3.60% | 1.70% | 2.10% | 2.38% | 4.32% |
| I-AM Vision - S USD (T) | Apr-21 | Jan-24 | 0.32% | | | | | | | 2.25% | 3.23% | 5.12% |
| **Mean of MFIFs** | | | **0.29%** | **0.20%** | **1.97%** | **3.38%** | **3.40%** | **5.02%** | **1.78%** | **2.80%** | **2.16%** | **5.53%** |
| **Benchmarks** | | | | | | | | | | | | |
| MSCI World (USD) | | | 0.69% | **-1.87%** | 5.91% | 20.33% | -9.61% | **26.35%** | 17.91% | **20.86%** | **-17.48%** | **23.29%** |
| MSCI EM (USD) | | | 0.15% | -15.62% | 10.10% | **35.10%** | -15.59% | 16.96% | **19.70%** | -4.02% | -20.52% | 8.65% |
| FTSE WGBI (USD) | | | -0.02% | -3.50% | 1.96% | 7.57% | **-0.75%** | 6.02% | 10.24% | -6.86% | -17.72% | 5.68% |
| FTSE EM (USD) | | | 0.15% | -16.31% | **11.75%** | 29.41% | -14.50% | 18.26% | 16.38% | -1.87% | -18.14% | 7.04% |

| **CHF-denominated funds** | **First** | **Last** | **Mean Monthly return** | **Total return p.a.** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** |
| Triodos CHI cap CHF | Jul-20 | Jan-24 | 0.36% | | | | | | 0.05% | 8.05% | 3.70% | 3.39% |
| I-AM Vision - I CHF (A) | Jan-15 | Jan-24 | -0.17% | -1.49% | -1.68% | -3.73% | -1.07% | -1.74% | -2.25% | -1.25% | -2.48% | -2.25% |
| I-AM Vision - I CHF (T) | Jan-15 | Jan-24 | 0.07% | 1.01% | 1.26% | -0.26% | 0.52% | 0.88% | 0.68% | 1.62% | 0.77% | 0.83% |
| I-AM Vision - R CHF (A) | Aug-16 | Jan-24 | -0.16% | | -0.10% | -1.95% | -1.06% | -2.00% | -2.75% | -1.20% | -2.42% | -2.72% |
| I-AM Vision - R CHF (T) | Jan-15 | Jan-24 | 0.02% | 0.34% | 0.74% | -0.82% | -0.04% | 0.31% | 0.14% | 1.08% | 0.19% | 0.30% |
| I-AM Vision - S CHF (T) | Apr-21 | Jan-24 | 0.03% | | | | | | | 0.00% | 0.00% | 0.81% |
| I-AM I CHF T | Jan-17 | Jan-24 | 0.27% | | | -0.55% | 5.04% | 1.85% | 2.44% | 2.63% | 7.07% | 4.84% |
| I-AM R CHF T | Jan-15 | Jan-24 | 0.12% | -7.93% | 1.01% | 5.81% | -1.01% | 4.47% | 1.30% | 1.87% | 2.10% | 6.48% |
| BOMF - D CHF Hgd | Jun-16 | Jan-24 | 0.09% | | 0.56% | 1.05% | 1.04% | 2.02% | 0.31% | 1.21% | 0.07% | 1.94% |
| BOMF - N CHF Cap | Jan-15 | Jan-24 | 0.11% | 2.11% | 1.54% | 1.16% | 1.15% | 2.12% | 0.41% | 1.31% | 0.16% | 2.04% |
| BOMF - I CHF Cap | Jan-15 | Jan-24 | 0.13% | 2.28% | 1.74% | 1.41% | 1.35% | 2.33% | 0.61% | 1.52% | 0.36% | 2.25% |
| BOMF - S CAP CHF H | Oct-16 | Jan-24 | 0.13% | | 0.39% | 1.57% | 1.56% | 2.53% | 0.82% | 1.72% | 0.56% | 2.46% |
| BOMF - P CHF Cap H | Jan-15 | Jan-24 | 0.07% | 1.58% | 1.07% | 0.65% | 0.68% | 1.65% | -0.05% | 0.85% | -0.29% | 1.58% |
| EMF AGmvK (FO/T CHF) | Apr-21 | Jan-24 | 0.19% | | | | | | | 2.30% | 2.01% | 1.88% |
| EMF AGmvK (I/T CHF) | Nov-20 | Jan-24 | 0.22% | | | | | | 0.61% | 3.33% | 2.33% | 2.09% |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EMF AGmvK CHF I/A CHF | Apr-21 | Jan-24 | 0.07% | | | | | | | 2.55% | -0.13% | -0.25% |
| EMF AGmvK D A CHF | Oct-19 | Jan-24 | 0.05% | | | | | 0.33% | 0.21% | 2.13% | 0.01% | -0.18% |
| EMF AGmvK D T CHF | Aug-19 | Jan-24 | 0.02% | | | | | -0.03% | -0.67% | 2.31% | -0.53% | -0.18% |
| rA Micro & SME Fin Debt I | Jan-15 | Jan-19 | -0.05% | -2.57% | -3.83% | -2.82% | -0.32% | 1.06% | 0.23% | 1.17% | -0.94% | 1.97% |
| rA Micro&SME Fin D I II CHF | Jan-15 | Jan-24 | 0.00% | 0.23% | -3.33% | -2.32% | 0.21% | 1.32% | 0.39% | 1.45% | -0.67% | 2.23% |
| rA Micro&SME Fin D I-IV | Jan-20 | Jan-24 | 0.10% | | | | | | 1.04% | 1.62% | -0.51% | 2.37% |
| rA Micro & SME Fin Leadrs S | Jan-15 | Jan-24 | 0.10% | 1.50% | 0.36% | 0.10% | 2.68% | 1.73% | -0.31% | 3.96% | -1.82% | 2.87% |
| rA Gl Micro&SME Fin Fund H II | Jan-15 | Jan-24 | -0.01% | 0.50% | -1.54% | 0.25% | 0.50% | 1.93% | -0.55% | 2.94% | -4.45% | -0.40% |
| rA Gl Micro&SME Fin Fund H | Jan-15 | Jan-24 | -0.04% | 0.18% | -1.89% | -0.12% | 0.12% | 1.60% | -0.90% | 2.58% | -4.78% | -0.75% |
| **Mean of MFIFs** | | | **0.07%** | **-0.19%** | **-0.38%** | **-0.04%** | **0.71%** | **1.38%** | **0.06%** | **1.95%** | **0.01%** | **1.40%** |
| **Benchmarks** | | | | | | | | | | | | |
| MSCI World | | | 0.54% | -0.09% | 7.52% | 15.35% | -9.03% | 24.92% | 7.49% | 24.66% | -16.76% | 11.36% |
| MSCI EM | | | -0.01% | -14.89% | 11.11% | 29.40% | -15.29% | 15.39% | 8.96% | -0.91% | -20.11% | -1.84% |
| FTSE WGBI | | | -0.16% | -2.31% | 3.38% | 3.02% | 0.04% | 4.58% | 0.77% | -4.03% | -16.92% | -4.15% |

| **GBP-denominated funds** | **First** | **Last** | **Mean Monthly return** | **Total return p.a.** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** |
| Triodos KB Dis GBP | Jan-15 | Jun-17 | 0.03% | -1.42% | 4.26% | -1.95% | | | | | | |
| Triodos KI Cap GBP | Jan-15 | Jan-24 | 0.24% | 0.00% | 0.00% | 0.00% | 4.31% | 4.71% | -3.69% | 8.37% | 5.63% | 6.98% |
| Triodos KI Dis GBP | Jan-15 | Jan-24 | 0.10% | -1.37% | 5.00% | -1.42% | 0.08% | 2.19% | -6.42% | 5.79% | 3.03% | 3.95% |
| BOMF - D GBP Hgd | Jun-16 | Jan-24 | 0.24% | | 1.78% | 2.54% | 2.65% | 3.73% | 1.49% | 2.10% | 2.13% | 5.54% |
| BOMF - BO GBP DIS HDG | Sep-23 | Jan-24 | 0.65% | | | | | | | | | 2.61% |
| BOMF - C GBP DIS HDG | Sep-23 | Jan-24 | 0.56% | | | | | | | | | 2.27% |
| BOMF - BO GBP CAP HDG | Nov-23 | Jan-24 | 0.65% | | | | | | | | | 1.28% |
| BOMF - C GBP CAP HDG | Nov-23 | Jan-24 | 0.56% | | | | | | | | | 1.11% |
| rA Gl Micro&SME Fin Fd IV | Oct-23 | Jan-24 | 0.42% | | | | | | | | | 1.12% |
| **Mean of MFIFs** | | | **0.38%** | **-0.93%** | **3.08%** | **0.37%** | **2.35%** | **3.54%** | **-2.87%** | **5.42%** | **3.60%** | **5.49%** |
| **Benchmarks** | | | | | | | | | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| MSCI World | 0.83% | 3.38% | 26.63% | 9.89% | -4.39% | 21.24% | 12.86% | 22.00% | -8.85% | 16.26% |
| MSCI EM | 0.29% | -11.27% | 32.22% | 23.44% | -11.11% | 11.87% | 14.46% | -3.09% | -12.14% | 2.49% |
| FTSE WGBI | 0.18% | 2.26% | 22.97% | -1.62% | 5.20% | 2.39% | 7.07% | -5.76% | -8.48% | 0.09% |

*Source: Own calculations based on EIKON data*

**Table A. 3.** CAPM regression result for EUR-, USD-, CHF-, and GBP-denominated funds on an individual level in relation with the MSCI World and MSCI EM benchmark indices.

The beta coefficient, Jensen's alpha, R-squared, and Treynor ratio are presented.

| | **MSCI WORLD** | | | | | | **MSCI EM** | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***EUR-denominated funds*** | **Beta** | | **alpha** | | **$R^2$** | **Treynor** | **Beta** | | **alpha** | | **$R^2$** | **Treynor** |
| Triodos R cap EUR | 0.0673 | *** | 0.13% | * | 10.03% | 0.0274 | 0.0416 | ** | 0.18% | ** | 3.97% | 0.0443 |
| Triodos B cap EUR | 0.0663 | *** | 0.13% | * | 9.59% | 0.0278 | 0.0428 | *** | 0.18% | ** | 4.15% | 0.0431 |
| Triodos B dis EUR | 0.0659 | *** | -0.06% | - | 5.47% | -0.0021 | 0.0617 | *** | -0.02% | - | 4.97% | -0.0022 |
| Triodos I cap EUR | 0.0684 | *** | 0.19% | ** | 10.31% | 0.0357 | 0.0424 | ** | 0.24% | *** | 4.10% | 0.0577 |
| Triodos I dis EUR | 0.0429 | *** | -0.04% | - | 2.26% | -0.0008 | 0.0503 | * | -0.01% | - | 3.22% | -0.0007 |
| Triodos I-II cap EUR | 0.0600 | *** | 0.20% | * | 7.05% | 0.0402 | 0.0460 | *** | 0.24% | ** | 3.96% | 0.0524 |
| Triodos P cap EUR | 0.0707 | ** | 0.15% | - | 9.02% | 0.0293 | 0.0508 | * | 0.21% | * | 4.30% | 0.0408 |
| Triodos R dis EUR | 0.0465 | ** | -0.05% | - | 3.17% | -0.0030 | 0.0487 | * | -0.02% | - | 3.60% | -0.0029 |
| Triodos Z dis EUR | 0.0443 | * | -0.04% | - | 2.55% | -0.0008 | 0.0499 | ** | -0.01% | - | 3.37% | -0.0007 |
| Triodos Z cap EUR | 0.0704 | * | 0.18% | ** | 11.83% | 0.0326 | 0.0423 | ** | 0.22% | *** | 4.42% | 0.0543 |
| Wallberg Global Microfinance I | -0.0311 | - | -0.04% | ** | 1.77% | 0.0287 | -0.0511 | * | -0.05% | - | 4.74% | 0.0183 |
| Wallberg Global Microfinance P | -0.0193 | - | 0.10% | * | 1.23% | -0.0277 | -0.0489 | *** | 0.10% | - | 7.75% | -0.0115 |
| EMF AGmvK (FO/T EUR) | 0.0031 | - | 0.13% | *** | 0.84% | 0.4455 | 0.0025 | - | 0.14% | *** | 0.48% | 0.5650 |
| EMF AGmvK (I/T EUR) | 0.0156 | - | 0.15% | ** | 3.42% | 0.1124 | -0.0148 | - | 0.17% | *** | 2.65% | -0.1185 |
| I-AM I EUR A | 0.0905 | *** | -0.12% | - | 7.97% | -0.0057 | 0.1729 | *** | -0.08% | - | 30.18% | -0.0030 |
| I-AM I EUR T | 0.0978 | *** | 0.09% | - | 14.42% | 0.0169 | 0.1545 | *** | 0.14% | * | 37.32% | 0.0107 |
| I-AM R EUR A | 0.0861 | *** | -0.12% | - | 8.13% | -0.0071 | 0.1664 | *** | -0.09% | - | 31.52% | -0.0037 |
| I-AM R EUR T | 0.0973 | *** | 0.05% | - | 14.31% | 0.0123 | 0.1541 | *** | 0.09% | - | 37.20% | 0.0078 |
| I-AM Vision I EUR (A) | 0.0155 | - | -0.07% | * | 1.16% | -0.0376 | 0.0311 | ** | -0.06% | - | 4.89% | -0.0187 |
| I-AM Vision I EUR (T) | 0.0157 | *** | 0.09% | *** | 12.91% | 0.0677 | 0.0162 | *** | 0.10% | *** | 14.27% | 0.0657 |
| I-AM Vision R EUR (A) | 0.0111 | - | -0.08% | ** | 0.82% | -0.0655 | 0.0255 | * | -0.08% | * | 4.46% | -0.0286 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| I-AM Vision R EUR (T) | 0.0158 | *** | 0.05% | - | 13.15% | 0.0382 | 0.0163 | ** | 0.06% | *** | 14.54% | 0.0370 |
| I-AM Vision S EUR (A) | 0.0123 | * | 0.06% | - | 8.76% | 0.0514 | 0.0153 | ** | 0.08% | * | 11.84% | 0.0413 |
| IIV Mikrofinanzfonds Class I | -0.0102 | - | -0.02% | - | 0.31% | 0.0287 | -0.0139 | - | -0.03% | - | 0.59% | 0.0211 |
| IIV Mikrofinanzfonds Class R | -0.0086 | - | -0.03% | - | 0.31% | 0.0401 | -0.0102 | - | -0.03% | - | 0.45% | 0.0339 |
| rA Glbl Micro & SME Fin Fd H II | 0.0005 | - | 0.01% | - | 0.00% | 0.1808 | -0.0105 | - | 0.01% | * | 1.03% | -0.0085 |
| rA Global Micro & SME Finance Fd H | 0.0003 | - | -0.02% | - | 0.00% | -0.7080 | -0.0106 | - | -0.02% | - | 1.04% | 0.0195 |
| rA MicroandSME Finance Leadrs S | 0.0059 | - | 0.12% | * | 0.21% | 0.2058 | -0.0012 | - | 0.12% | ** | 0.01% | -1.0004 |
| rA MicroandSMEFinanceDebt A | -0.0057 | - | -0.07% | ** | 0.16% | 0.1294 | -0.0218 | * | -0.07% | - | 2.50% | 0.0338 |
| rA MicroandSMEFinanceDebt I EUR | -0.0052 | - | -0.02% | - | 0.13% | 0.0440 | -0.0216 | * | -0.02% | - | 2.40% | 0.0105 |
| rA MicroandSMEFinanceDebt I II | -0.0131 | * | 0.04% | - | 1.73% | -0.0251 | -0.0193 | ** | 0.04% | - | 3.74% | -0.0170 |
| SEB II A D NH EUR Dis | 0.0078 | - | -0.13% | - | 0.02% | -0.1651 | -0.0021 | - | -0.13% | - | 0.00% | 0.6132 |
| SEB II B C NH EUR Cap | 0.0301 | - | 0.18% | - | 0.39% | 0.0682 | 0.0197 | - | 0.20% | - | 0.21% | 0.1041 |
| SEB II B/D NH EUR Dis | 0.0444 | - | 0.07% | - | 0.92% | -0.0307 | 0.0106 | - | -0.14% | - | 0.06% | -0.1289 |
| BOMF - D EUR Hdg | 0.0085 | *** | 0.04% | ** | 7.97% | 0.1119 | 0.0078 | *** | 0.09% | *** | 6.46% | 0.1222 |
| BOMF - F EUR Cap Hgd | 0.0079 | * | 0.09% | *** | 5.64% | 0.0636 | 0.0101 | ** | 0.05% | * | 8.26% | 0.0498 |
| BOMF - H CAP EUR H | 0.0085 | ** | 0.12% | *** | 7.99% | 0.1492 | 0.0089 | ** | 0.13% | *** | 8.13% | 0.1426 |
| BOMF - I EUR Cap | 0.0067 | *** | 0.14% | *** | 5.34% | 0.2187 | 0.0051 | *** | 0.14% | *** | 3.31% | 0.2833 |
| BOMF - N EUR Cap | 0.0066 | *** | 0.12% | *** | 5.17% | 0.1965 | 0.0051 | * | 0.13% | ** | 3.23% | 0.2534 |
| BOMF - P EUR Cap H | 0.0066 | *** | 0.08% | ** | 5.25% | 0.1360 | 0.0050 | ** | 0.09% | ** | 3.17% | 0.1784 |
| BOMF - S CAP EUR H | 0.0086 | *** | 0.13% | *** | 8.11% | 0.1568 | 0.0081 | *** | 0.13% | *** | 6.80% | 0.1673 |
| BOMF - C EUR DIS HDG | 0.0015 | - | 0.36% | *** | 1.97% | 2.6709 | -0.0052 | - | 0.39% | *** | 21.71% | -0.7458 |
| BOMF - BO EUR CAP HDG | -0.0193 | - | 0.56% | * | 75.81% | -0.2764 | -0.0093 | - | 0.54% | *** | 97.93% | -0.5748 |
| BOMF - C EUR CAP HDG | -0.0182 | - | 0.47% | * | 84.55% | -0.2460 | -0.0081 | - | 0.45% | *** | 93.65% | -0.5525 |
| Luxembourg A Acc | 0.0044 | - | 0.07% | - | 0.19% | 0.1773 | 0.0158 | - | 0.07% | * | 2.50% | 0.0493 |
| Luxembourg B Acc | -0.0127 | * | 0.14% | *** | 2.76% | -0.1049 | -0.0064 | - | 0.13% | * | 0.74% | -0.2070 |
| Luxembourg C Acc | -0.0079 | * | 0.07% | - | 2.82% | -0.0817 | -0.0041 | * | 0.06% | ** | 0.79% | -0.1573 |
| KCD-Mikrofinanzfonds - III | 0.0247 | * | -0.03% | - | 2.58% | -0.0028 | 0.0221 | * | -0.01% | - | 2.10% | -0.0031 |
| GLS A | 0.0016 | - | -0.07% | - | 0.01% | -0.4464 | -0.0131 | - | -0.07% | - | 0.88% | 0.0548 |
| GLS B | 0.0016 | - | -0.06% | - | 0.01% | -0.3423 | -0.0136 | - | -0.05% | - | 0.91% | 0.0413 |
| GLS C | 0.0147 | - | 0.01% | - | 0.36% | 0.0159 | -0.0233 | - | 0.03% | - | 0.90% | -0.0101 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ERSTE D01 | 0.0130 | ** | 0.04% | - | 4.77% | 0.0408 | 0.0104 | * | 0.05% | * | 2.90% | 0.0508 |
| ERSTE EUR I01 | 0.0130 | * | 0.05% | - | 4.67% | 0.0476 | 0.0102 | * | 0.06% | * | 2.73% | 0.0606 |
| ERSTE EUR R01 | 0.0545 | *** | -0.11% | - | 7.66% | -0.0131 | 0.0358 | ** | -0.08% | - | 3.44% | -0.0198 |
| ERSTE EUR R01 VTIA | -0.0004 | - | 0.06% | * | 0.01% | -1.6301 | -0.0060 | - | 0.06% | * | 1.71% | -0.1077 |
| ERSTE EUR R01 T | 0.0309 | *** | 0.02% | - | 8.36% | 0.0144 | 0.0181 | * | 0.04% | - | 2.96% | 0.0246 |

| | MSCI WORLD | | | | | | MSCI EM | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***USD-denominated funds*** | **Beta** | | **alpha** | | **$R^2$** | **Treynor** | **Beta** | | **alpha** | | **$R^2$** | **Treynor** |
| BOMF - Andban USD (Liquidated) | 0.0589 | ** | 0.10% | - | 12.93% | 0.0242 | 0.0102 | - | 0.13% | * | 0.76% | 0.1398 |
| BOMF - D USD Cap | 0.0064 | ** | 0.25% | *** | 4.05% | 0.3780 | 0.0056 | * | 0.25% | *** | 3.59% | 0.4362 |
| BOMF - S USD | 0.0145 | - | -0.03% | - | 0.79% | -0.0219 | 0.0360 | - | 0.00% | - | 5.12% | -0.0088 |
| BOMF - I USD D | 0.0137 | - | -0.04% | - | 0.61% | -0.0296 | 0.0387 | - | 0.00% | - | 5.43% | -0.0105 |
| BOMF - H USD Cap | 0.0061 | * | 0.30% | *** | 3.66% | 0.4872 | 0.0059 | * | 0.30% | *** | 3.67% | 0.5077 |
| BOMF - I USD Cap | 0.0055 | ** | 0.28% | *** | 3.34% | 0.5124 | 0.0041 | * | 0.28% | *** | 2.38% | 0.6885 |
| BOMF - N USD Cap | 0.0066 | - | 0.26% | *** | 0.90% | 0.4052 | 0.0011 | - | 0.27% | *** | 0.03% | 2.5048 |
| BOMF - P USD Cap | 0.0055 | ** | 0.23% | *** | 3.31% | 0.4156 | 0.0041 | * | 0.23% | *** | 2.31% | 0.5639 |
| BOMF - S CAP USD | 0.0065 | ** | 0.29% | *** | 4.07% | 0.4573 | 0.0058 | * | 0.30% | *** | 3.79% | 0.5133 |
| BOMF - C USD DIS | 0.0034 | - | 0.57% | *** | 26.33% | 1.7022 | 0.0017 | - | 0.58% | *** | 6.46% | 3.3682 |
| BOMF - BO USD CAP | -0.0015 | - | 0.69% | ** | 41.35% | -4.6427 | -0.0006 | - | 0.69% | *** | 19.19% | -10.7747 |
| BOMF - C USD CAP | -0.0003 | - | 0.59% | ** | 1.41% | -18.7399 | 0.0002 | - | 0.60% | *** | 1.58% | 27.9958 |
| EMF AGmvK A | 0.0038 | - | 0.03% | - | 0.04% | 0.0773 | 0.0284 | * | 0.02% | - | 3.57% | 0.0104 |
| EMF AGmvK D (I/A) USD | -0.0186 | - | 0.10% | - | 1.33% | -0.0457 | -0.0138 | - | 0.08% | - | 0.74% | -0.0618 |
| EMF AGmvK D T | -0.0007 | - | 0.03% | - | 0.00% | -0.3572 | 0.0178 | * | 0.03% | - | 1.17% | 0.0150 |
| EMF AGmvK FO/A USD | -0.0225 | - | 0.07% | - | 1.94% | -0.0266 | -0.0193 | - | 0.04% | - | 1.50% | -0.0311 |
| EMF AGmvK R (I/T) USD | 0.0006 | - | 0.29% | *** | 0.09% | 5.2267 | 0.0008 | - | 0.29% | *** | 0.17% | 3.7610 |
| EMF AGmvK R F/T | 0.0011 | - | 0.25% | *** | 0.04% | 2.2096 | 0.0035 | - | 0.25% | *** | 0.48% | 0.7103 |
| EMF AGmvK R T | 0.0003 | - | 0.31% | *** | 0.01% | 12.0567 | 0.0007 | - | 0.31% | *** | 0.09% | 4.5153 |
| EMF AGmvK SN T | 0.0019 | - | 0.47% | *** | 0.52% | 2.4573 | 0.0028 | - | 0.45% | *** | 1.34% | 1.6374 |
| EMF AGmvK T | 0.0020 | - | 0.17% | *** | 0.04% | 1.5638 | 0.0088 | - | 0.17% | *** | 1.28% | 0.2538 |
| I-AM I USD A | 0.1352 | *** | 0.17% | - | 32.86% | 0.0213 | 0.1582 | *** | 0.26% | *** | 50.44% | 0.0182 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| I-AM I USD T | 0.1299 | *** | 0.24% | *** | 27.79% | 0.0244 | 0.1463 | *** | 0.30% | ** | 45.30% | 0.0217 |
| I-AM R USD T | 0.1294 | *** | 0.19% | *** | 27.46% | 0.0209 | 0.1467 | *** | 0.26% | *** | 45.40% | 0.0185 |
| rA Micro&SMEFinanceDebt I II | -0.0172 | * | 0.19% | *** | 3.64% | -0.1025 | -0.0184 | * | 0.18% | *** | 5.22% | -0.0958 |
| rA Micro&SME Finance Leadrs I | 0.0100 | - | 0.25% | ** | 0.69% | 0.2528 | 0.0040 | - | 0.25% | ** | 0.14% | 0.6379 |
| rA Micro&SME Finance Leadrs I-IV | 0.0201 | - | 0.19% | *** | 3.46% | 0.1217 | 0.0156 | - | 0.26% | ** | 2.18% | 0.1575 |
| rA Glbl Micro&SME Fin Fd II USD | -0.0002 | - | 0.14% | ** | 0.00% | -6.3051 | -0.0073 | - | 0.14% | *** | 0.70% | -0.1886 |
| rA Global Micro&SME Finance Fund B | -0.0003 | - | 0.11% | *** | 0.00% | -3.9366 | -0.0074 | - | 0.11% | *** | 0.70% | -0.1476 |
| I-AM Vision I USD (A) | 0.0173 | *** | 0.05% | - | 1.84% | 0.0338 | 0.0207 | *** | 0.06% | ** | 3.44% | 0.0283 |
| I-AM Vision I USD (T) | 0.0118 | *** | 0.20% | *** | 7.86% | 0.1766 | 0.0112 | *** | 0.21% | *** | 9.03% | 0.1868 |
| I-AM Vision R USD (A) | 0.0192 | *** | 0.05% | - | 4.07% | 0.0305 | 0.0221 | *** | 0.05% | - | 6.36% | 0.0265 |
| I-AM Vision R USD (T) | 0.0114 | *** | 0.16% | *** | 7.27% | 0.1435 | 0.0111 | *** | 0.16% | ** | 8.77% | 0.1482 |
| I-AM Vision S USD (T) | 0.0032 | *** | 0.16% | *** | 0.71% | 0.5107 | 0.0058 | *** | 0.17% | *** | 2.44% | 0.2833 |
| Finethic C USD | -0.0058 | ** | 0.17% | *** | 3.81% | -0.2827 | -0.0064 | *** | 0.16% | *** | 6.04% | -0.2549 |
| Finethic S USD | 0.0008 | - | -0.05% | ** | 1.52% | -0.6050 | 0.0006 | - | -0.05% | ** | 1.07% | -0.8164 |
| Finethic II C | 0.0485 | - | -0.19% | - | 1.30% | -0.0420 | 0.0496 | - | -0.17% | - | 1.65% | -0.0410 |
| Finethic II F | 0.0489 | - | -0.16% | - | 1.31% | -0.0355 | 0.0497 | - | -0.14% | - | 1.65% | -0.0349 |
| Global Microfinance Debt (FoF) -I- | 0.0114 | *** | 0.10% | *** | 1.19% | 0.0965 | 0.0109 | ** | 0.11% | *** | 1.33% | 0.1010 |

| | **MSCI WORLD** | | | | | | **MSCI EM** | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***CHF-denominated funds*** | **Beta** | | **alpha** | | **$R^2$** | **Treynor** | **Beta** | | **alpha** | | **$R^2$** | **Treynor** |
| D CHF Hgd | 0.0083 | *** | 0.06% | *** | 12.84% | 0.0791 | 0.0070 | *** | 0.06% | *** | 9.48% | 0.0934 |
| BOMF - I CHF Cap | 0.0058 | *** | 0.11% | *** | 7.16% | 0.1949 | 0.0045 | ** | 0.11% | *** | 4.42% | 0.2509 |
| BOMF - N CHF Cap | 0.0059 | *** | 0.09% | *** | 7.34% | 0.1631 | 0.0044 | ** | 0.10% | *** | 4.22% | 0.2174 |
| BOMF - P CHF Cap | 0.0057 | *** | 0.05% | *** | 6.97% | 0.0996 | 0.0043 | ** | 0.06% | *** | 4.10% | 0.1313 |
| BOMF - S CAP CHF H | 0.0081 | *** | 0.10% | *** | 12.23% | 0.1329 | 0.0071 | *** | 0.11% | *** | 9.63% | 0.1516 |
| EMF AGmvK (FO/T CHF) | 0.0034 | - | 0.11% | *** | 1.57% | 0.3373 | 0.0013 | - | 0.13% | *** | 0.21% | 0.9079 |
| EMF AGmvK (I/T CHF) | 0.0023 | - | 0.14% | *** | 0.06% | 0.6741 | -0.0007 | - | 0.16% | ** | 0.01% | -2.1026 |
| EMF AGmvK CHF I/A CHF | -0.0053 | - | 0.00% | - | 0.14% | 0.0020 | -0.0079 | - | 0.00% | - | 0.30% | 0.0014 |
| EMF AGmvK D A CHF | -0.0037 | - | 0.00% | - | 0.17% | -0.0140 | -0.0003 | - | 0.01% | - | 0.00% | -0.1594 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EMF AGmvK D T CHF | -0.0008 | - | -0.03% | - | 0.01% | 0.3116 | 0.0031 | * | -0.02% | - | 0.12% | -0.0808 |
| I-AM I CHF T | -0.0156 | - | 0.24% | ** | 0.43% | -0.1525 | 0.0017 | - | 0.24% | ** | 0.01% | 1.3952 |
| I-AM R CHF T | 0.0869 | *** | 0.06% | *** | 12.67% | 0.0120 | 0.1423 | *** | 0.11% | ** | 34.65% | 0.0073 |
| I-AM Vision I CHF (A) | 0.0213 | - | -0.19% | * | 1.35% | -0.0850 | 0.0380 | ** | -0.18% | - | 4.39% | -0.0476 |
| I-AM Vision I CHF (T) | 0.0127 | *** | 0.04% | ** | 10.08% | 0.0412 | 0.0137 | *** | 0.05% | ** | 12.07% | 0.0381 |
| I-AM Vision R CHF (A) | 0.0340 | ** | -0.21% | *** | 5.14% | -0.0546 | 0.0409 | * | -0.19% | *** | 7.64% | -0.0455 |
| I-AM Vision R CHF (T) | 0.0134 | *** | 0.00% | * | 10.52% | 0.0042 | 0.0143 | *** | 0.01% | ** | 12.12% | 0.0040 |
| I-AM Vision S-CHF (T) | -0.0030 | - | -0.04% | - | 1.93% | 0.1396 | -0.0020 | - | -0.03% | - | 0.79% | 0.2125 |
| rA Glbl Micro&SME Fin Fd H II | 0.0030 | - | -0.03% | - | 0.09% | -0.0773 | -0.0065 | - | -0.02% | - | 0.44% | 0.0363 |
| rA Global Micro&SME Finance Fd H | 0.0027 | - | -0.05% | - | 0.08% | -0.1928 | -0.0067 | - | -0.05% | - | 0.47% | 0.0782 |
| rA Micro&SME Finance Leadrs S | 0.0080 | - | 0.08% | * | 0.47% | 0.1109 | 0.0024 | - | 0.09% | * | 0.04% | 0.3738 |
| Triodos CHI cap CHF | 0.1336 | * | 0.21% | - | 7.90% | 0.0230 | 0.0394 | - | 0.32% | - | 0.61% | 0.0779 |
| rA MicroandSMEFinanceDebt I | -0.0115 | - | -0.07% | - | 0.62% | 0.0612 | -0.0277 | * | -0.07% | - | 3.68% | 0.0254 |
| rA MicroandSMEFinanceDebt I II | -0.0144 | - | -0.01% | * | 1.42% | 0.0129 | -0.0239 | - | -0.02% | * | 4.03% | 0.0078 |
| rA MicroandSMEFinanceDebt I-IV | -0.0145 | * | 0.05% | - | 4.65% | -0.0346 | -0.0134 | * | 0.05% | - | 3.72% | -0.0372 |
| Finethic C CHF | -0.0042 | - | -0.01% | - | 1.91% | 0.0219 | -0.0081 | - | -0.01% | - | 7.20% | 0.0114 |
| Finethic II CC | 0.0557 | - | -0.32% | ** | 1.67% | -0.0694 | 0.0605 | - | -0.30% | * | 2.11% | -0.0638 |

| | MSCI WORLD | | | | | | MSCI EM | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **GBP-denominated funds** | **Beta** | | **alpha** | | **$R^2$** | **Treynor** | **Beta** | | **alpha** | | **$R^2$** | **Treynor** |
| BOMF - BO GBP DIS HDG | -0.0041 | - | 0.66% | *** | 30.04% | -1.5797 | -0.0057 | * | 0.65% | - | 79.43% | -1.1319 |
| BOMF - BO GBP CAP HDG | -0.0135 | * | 0.69% | ** | 94.04% | -0.4781 | -0.0052 | - | 0.65% | *** | 79.81% | -1.2466 |
| BOMF - C GBP DIS HDG | -0.0038 | - | 0.57% | *** | 33.64% | -1.4895 | -0.0047 | * | 0.56% | *** | 71.15% | -1.1932 |
| BOMF - D GBP Cap Hgd | 0.0066 | * | 0.18% | *** | 3.27% | -0.2229 | -0.0030 | * | 0.19% | *** | 1.88% | -0.6414 |
| BOMF - C GBP CAP HDG | 0.0066 | - | 0.60% | ** | 81.57% | -0.5155 | 0.0044 | - | 0.56% | *** | 62.10% | -1.4190 |
| rA Global Micro and SME Fin Fnd IV | -0.0201 | - | 0.46% | - | 3.39% | -0.2081 | -0.0264 | - | 0.41% | - | 9.07% | -0.1583 |
| Triodos KB Dis | 0.0415 | - | -0.01% | - | 1.32% | 0.0082 | 0.0099 | - | 0.02% | - | 0.20% | 0.0345 |
| Triodos KI cap GBP | 0.0448 | ** | 0.16% | ** | 3.69% | 0.0445 | 0.0184 | - | 0.19% | ** | 0.87% | 0.1081 |
| Triodos KI dis GBP | 0.0078 | * | 0.05% | - | 0.05% | 0.0776 | 0.0144 | * | 0.06% | - | 0.26% | 0.0420 |

*Source: Own calculations based on EIKON data* *** $p<0.01$ ** $p<0.05$ * $p<0.1$

**Table A. 4.** CAPM regression result for EUR-, USD-, CHF-, and GBP-denominated funds on an individual level in relation with the FTSE WGBI benchmark indice.

The beta coefficient, Jensen's alpha, R-squared, Treynor ratio and Sharpe ratio are presented.

| | FTSE WGBI | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **EUR-denominated funds** | **Beta** | | **alpha** | | **$R^2$** | **Treynor** | **Sharpe** | **N** |
| Triodos R cap EUR | -0.1465 | *** | 0.18% | ** | 10.46% | -0.0126 | 0.2073 | 109 |
| Triodos B cap EUR | -0.1385 | *** | 0.18% | ** | 9.22% | -0.0133 | 0.2062 | 109 |
| Triodos B dis EUR | -0.1051 | * | -0.02% | - | 3.06% | 0.0013 | -0.0115 | 109 |
| Triodos I cap EUR | -0.1457 | *** | 0.24% | *** | 10.31% | -0.0168 | 0.2748 | 109 |
| Triodos I dis EUR | -0.1284 | ** | -0.01% | - | 4.45% | 0.0003 | -0.0030 | 109 |
| Triodos I-II cap EUR | -0.1318 | *** | 0.23% | ** | 7.60% | -0.0183 | 0.2498 | 81 |
| Triodos P cap EUR | -0.1541 | ** | 0.16% | - | 10.38% | -0.0134 | 0.1854 | 50 |
| Triodos R dis EUR | -0.1284 | *** | -0.02% | - | 5.32% | 0.0011 | -0.0127 | 109 |
| Triodos Z dis EUR | -0.1304 | * | -0.01% | - | 4.88% | 0.0003 | -0.0030 | 109 |
| Triodos Z cap EUR | -0.1002 | ** | 0.22% | - | 5.28% | -0.0229 | 0.2681 | 109 |
| Wallberg Global Microfinance I | -0.1906 | *** | -0.08% | - | 11.63% | 0.0059 | -0.0936 | 93 |
| Wallberg Global Microfinance P | -0.1487 | *** | 0.07% | - | 12.69% | -0.0045 | 0.0752 | 93 |
| EMF AGmvK (FO/T EUR) | -0.0031 | - | 0.14% | *** | 0.21% | -0.4440 | 0.8673 | 52 |
| EMF AGmvK (I/T EUR) | -0.0175 | - | 0.17% | * | 1.58% | -0.0997 | 0.4918 | 39 |
| I-AM I EUR A | 0.2343 | *** | -0.04% | - | 11.76% | -0.0022 | -0.0384 | 109 |
| I-AM I EUR T | 0.1902 | *** | 0.18% | *** | 12.01% | 0.0087 | 0.1525 | 109 |
| I-AM R EUR A | 0.2149 | *** | -0.05% | - | 11.15% | -0.0028 | -0.0479 | 109 |
| I-AM R EUR T | 0.1898 | *** | 0.13% | * | 11.97% | 0.0063 | 0.1107 | 109 |
| I-AM Vision I EUR (A) | 0.0386 | - | -0.06% | - | 1.59% | -0.0151 | -0.0969 | 109 |
| I-AM Vision I EUR (T) | 0.0063 | - | 0.11% | *** | 0.45% | 0.1697 | 0.5828 | 109 |
| I-AM Vision R EUR (A) | 0.0208 | - | -0.07% | * | 0.63% | -0.0351 | -0.1422 | 109 |
| I-AM Vision R EUR (T) | 0.0060 | - | 0.06% | *** | 0.42% | 0.0998 | 0.3314 | 109 |
| I-AM Vision S EUR (A) | 0.0014 | - | 0.07% | * | 0.05% | 0.4605 | 0.3626 | 31 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| IIV Mikrofinanzfonds Class I | -0.0441 | - | -0.03% | - | 1.27% | 0.0067 | -0.0383 | 109 |
| IIV Mikrofinanzfonds Class R | -0.0393 | - | -0.04% | - | 1.44% | 0.0088 | -0.0537 | 109 |
| rA Glbl Micro & SME Fin Fd H II | 0.0101 | - | 0.01% | ** | 0.20% | 0.0088 | -0.0466 | 109 |
| rA Global Micro&SME Finance Fd H | 0.0101 | - | -0.02% | - | 0.20% | -0.0205 | 0.2270 | 109 |
| rA MicroandSME Finance Leadrs S | 0.0201 | - | 0.12% | * | 0.55% | 0.0604 | -0.1248 | 109 |
| rA MicroandSMEFinanceDebt A | -0.0312 | - | -0.07% | * | 1.08% | 0.0237 | -0.0381 | 109 |
| rA MicroandSMEFinanceDebt I | -0.0318 | - | -0.02% | - | 1.11% | 0.0071 | 0.0809 | 109 |
| rA MicroandSMEFinanceDebt I II | -0.0122 | - | 0.03% | - | 0.37% | -0.0270 | 0.7696 | 99 |
| SEB II A D NH EUR Dis | 0.0093 | - | -0.13% | - | 0.01% | -0.1394 | -0.0690 | 60 |
| SEB II B C NH EUR Cap | -0.0037 | - | 0.21% | - | 0.00% | -0.5497 | 0.1186 | 60 |
| SEB II B/D NH EUR Dis | -0.0423 | - | -0.13% | - | 0.15% | 0.0322 | -0.0819 | 60 |
| BOMF - D EUR Hdg | 0.0138 | ** | 0.10% | *** | 5.21% | 0.0691 | 0.7696 | 92 |
| BOMF - F EUR Cap Hgd | 0.0171 | * | 0.06% | ** | 6.39% | 0.0294 | 0.3117 | 49 |
| BOMF - H CAP EUR H | 0.0163 | ** | 0.13% | *** | 6.34% | 0.0781 | 0.9333 | 72 |
| BOMF - I EUR Cap | 0.0125 | ** | 0.15% | ** | 4.16% | 0.1164 | 1.2045 | 109 |
| BOMF - N EUR Cap | 0.0126 | ** | 0.13% | *** | 4.17% | 0.1026 | 1.0646 | 109 |
| BOMF - P EUR Cap H | 0.0124 | ** | 0.09% | ** | 4.08% | 0.0724 | 0.7424 | 109 |
| BOMF - S CAP EUR H | 0.0146 | *** | 0.14% | ** | 5.56% | 0.0929 | 1.0680 | 88 |
| BOMF - C EUR DIS HDG | 0.0009 | * | 0.38% | *** | 0.66% | 4.3459 | 9.6556 | 5 |
| BOMF - BO EUR CAP HDG | -0.0095 | - | 0.55% | *** | 86.46% | -0.5634 | 14.8262 | 3 |
| BOMF - C EUR CAP HDG | -0.0080 | - | 0.46% | *** | 78.10% | -0.5572 | 13.9355 | 3 |
| Luxembourg A Acc | 0.0045 | - | 0.08% | * | 0.04% | 0.1735 | 0.1829 | 109 |
| Luxembourg B Acc | -0.0091 | * | 0.13% | ** | 0.31% | -0.1461 | 0.4170 | 109 |
| Luxembourg C Acc | -0.0070 | - | 0.06% | * | 0.48% | -0.0925 | 0.3282 | 109 |
| KCD-Mikrofinanzfonds - III | 0.0057 | ** | -0.01% | - | 0.03% | -0.0119 | -0.0106 | 108 |
| GLS A | -0.0686 | * | -0.07% | - | 6.05% | 0.0105 | -0.1270 | 96 |
| GLS B | -0.0676 | * | -0.06% | - | 5.75% | 0.0083 | -0.0973 | 97 |
| GLS C | -0.1357 | *** | 0.02% | - | 7.81% | -0.0017 | 0.0237 | 97 |
| ERSTE D01 | -0.0017 | - | 0.05% | * | 0.02% | -0.3024 | 0.1997 | 73 |
| ERSTE EUR I01 | -0.0032 | - | 0.06% | * | 0.06% | -0.1923 | 0.2308 | 73 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ERSTE EUR R01 | -0.0062 | - | -0.07% | - | 0.02% | 0.1139 | -0.0865 | 109 |
| ERSTE EUR R01 VTIA | 0.0060 | - | 0.07% | * | 0.73% | 0.1071 | 0.3758 | 45 |
| ERSTE EUR R01 T | -0.0311 | - | 0.04% | - | 1.86% | -0.0143 | 0.0994 | 109 |
| | | | **FTSE WGBI** | | | | | |
| **USD-denominated funds** | **Beta** | | **alpha** | | **$R^2$** | **Treynor** | **Sharpe** | **N** |
| BOMF - Andban USD (Liquidated) | -0.0369 | - | 0.15% | * | 1.58% | -0.0386 | 0.2885 | 36 |
| BOMF - D USD Cap | 0.0213 | *** | 0.26% | *** | 8.94% | 0.1143 | 1.6774 | 92 |
| BOMF - S USD | 0.0440 | - | 0.02% | - | 2.13% | -0.0072 | -0.0364 | 26 |
| BOMF - I USD D | 0.0546 | - | 0.02% | - | 3.02% | -0.0074 | -0.0429 | 24 |
| BOMF - H USD Cap | 0.0242 | *** | 0.31% | *** | 9.80% | 0.1235 | 1.8481 | 72 |
| BOMF - I USD Cap | 0.0191 | *** | 0.29% | ** | 7.69% | 0.1485 | 2.1004 | 109 |
| BOMF - N USD Cap | 0.0036 | - | 0.27% | *** | 0.05% | 0.7380 | 0.8612 | 109 |
| BOMF - P USD Cap | 0.0190 | *** | 0.23% | *** | 7.66% | 0.1202 | 1.6972 | 109 |
| BOMF - S CAP USD | 0.0231 | *** | 0.30% | *** | 10.11% | 0.1282 | 1.9984 | 88 |
| BOMF - C USD DIS | 0.0060 | * | 0.57% | *** | 34.52% | 0.9697 | 17.4094 | 5 |
| BOMF - BO USD CAP | -0.0006 | - | 0.68% | *** | 4.77% | -11.9567 | 90.4954 | 3 |
| BOMF - C USD CAP | 0.0011 | - | 0.59% | *** | 12.37% | 5.5329 | 67.4348 | 3 |
| EMF AGmvK A | 0.1083 | * | 0.02% | - | 6.16% | 0.0027 | 0.0440 | 52 |
| EMF AGmvK D (I/A) USD | -0.0037 | - | 0.09% | - | 0.01% | -0.2307 | 0.1052 | 41 |
| EMF AGmvK D T | 0.0210 | - | 0.03% | - | 0.24% | 0.0128 | 0.0321 | 109 |
| EMF AGmvK FO/A USD | -0.0055 | - | 0.07% | - | 0.03% | -0.1082 | 0.0759 | 35 |
| EMF AGmvK R (I/T) USD | 0.0070 | * | 0.31% | *** | 3.23% | 0.4134 | 3.0627 | 42 |
| EMF AGmvK R F/T | 0.0005 | - | 0.25% | *** | 0.00% | 5.3493 | 0.9745 | 109 |
| EMF AGmvK R T | -0.0027 | - | 0.31% | *** | 0.24% | -1.1359 | 2.4326 | 56 |
| EMF AGmvK SN T | -0.0419 | - | 0.51% | *** | 10.82% | -0.1093 | 2.7964 | 11 |
| EMF AGmvK T | 0.0073 | - | 0.18% | *** | 0.11% | 0.3862 | 0.5027 | 52 |
| I-AM I USD A | 0.2160 | *** | 0.32% | ** | 15.36% | 0.0133 | 0.2370 | 60 |
| I-AM I USD T | 0.2050 | *** | 0.33% | * | 13.40% | 0.0154 | 0.2883 | 109 |
| I-AM R USD T | 0.2072 | *** | 0.28% | ** | 13.63% | 0.0131 | 0.2460 | 109 |
| rA MicroandSMEFinanceDebt I II | -0.0107 | * | 0.18% | *** | 0.29% | -0.1652 | 0.4369 | 99 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| rA MicroandSME Finance Leadrs I | 0.0249 | - | 0.26% | ** | 0.83% | 0.1012 | 0.4711 | 109 |
| rA MicroandSME Finance Leadrs I-IV | 0.0501 | - | 0.29% | *** | 6.04% | 0.0489 | 0.4634 | 35 |
| rA Glbl Micro & SME Fin Fd II USD | 0.0134 | - | 0.14% | *** | 0.35% | 0.1033 | 0.3117 | 109 |
| rA Global Micro and SME Finance Fund B | 0.0134 | - | 0.11% | *** | 0.35% | 0.0813 | 0.2451 | 109 |
| I-AM Vision I USD (A) | 0.0219 | *** | 0.06% | *** | 0.58% | 0.0267 | -0.1087 | 106 |
| I-AM Vision I USD (T) | 0.0109 | *** | 0.21% | ** | 1.29% | 0.1915 | 0.0155 | 109 |
| I-AM Vision R USD (A) | 0.0201 | *** | 0.06% | * | 0.87% | 0.0291 | -0.0864 | 91 |
| I-AM Vision R USD (T) | 0.0115 | *** | 0.17% | ** | 1.43% | 0.1424 | -0.0060 | 109 |
| I-AM Vision S USD (T) | 0.0005 | *** | 0.18% | *** | 0.00% | 3.4821 | 0.0131 | 34 |
| Finethic C USD | 0.0038 | - | 0.17% | *** | 0.32% | 0.4296 | 1.2392 | 109 |
| Finethic S USD | -0.0004 | - | -0.05% | * | 0.07% | 1.2022 | -1.6727 | 109 |
| Finethic II C | 0.0646 | - | -0.15% | - | 0.31% | -0.0315 | -0.1156 | 70 |
| Finethic II F | 0.0646 | - | -0.12% | - | 0.31% | -0.0269 | -0.0985 | 70 |
| Global Microfinance Debt (FoF) -I- | 0.0447 | ** | 0.12% | *** | 5.55% | 0.0245 | 0.5558 | 87 |

| | | | FTSE WGBI | | | | | |
|---|---|---|---|---|---|---|---|---|
| **CHF-denominated funds** | **Beta** | | **alpha** | | **R2** | **Treynor** | **Sharpe** | **N** |
| D CHF Hgd | 0.0152 | ** | 0.08% | *** | 5.19% | 0.0431 | 0.6553 | 92 |
| BOMF - I CHF Cap | 0.0129 | *** | 0.12% | *** | 5.42% | 0.0875 | 1.1697 | 109 |
| BOMF - N CHF Cap | 0.0128 | *** | 0.10% | *** | 5.29% | 0.0750 | 0.9908 | 109 |
| BOMF - P CHF Cap | 0.0112 | ** | 0.06% | *** | 4.07% | 0.0509 | 0.5896 | 109 |
| BOMF - S CAP CHF H | 0.0163 | ** | 0.12% | *** | 5.95% | 0.0656 | 1.0580 | 88 |
| EMF AGmvK (FO/T CHF) | 0.0167 | * | 0.17% | *** | 4.94% | 0.0693 | 1.0249 | 34 |
| EMF AGmvK (I/T CHF) | -0.0131 | - | 0.18% | ** | 0.22% | -0.1189 | 0.3729 | 39 |
| EMF AGmvK CHF I/A CHF | 0.0679 | - | 0.10% | - | 3.09% | -0.0002 | -0.0018 | 34 |
| EMF AGmvK D A CHF | 0.0140 | * | 0.04% | - | 0.21% | 0.0037 | 0.0118 | 52 |
| EMF AGmvK D T CHF | 0.0050 | - | 0.00% | - | 0.03% | -0.0491 | -0.0579 | 54 |
| I-AM I CHF T | -0.0836 | - | 0.22% | * | 1.46% | -0.0284 | 0.2255 | 85 |
| I-AM R CHF T | -0.0209 | - | 0.10% | ** | 0.11% | -0.0498 | 0.0954 | 109 |
| I-AM Vision I CHF (A) | 0.0571 | - | -0.17% | - | 1.48% | -0.0316 | -0.2211 | 109 |
| I-AM Vision I CHF (T) | 0.0149 | * | 0.06% | ** | 2.11% | 0.0351 | 0.2933 | 109 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| I-AM Vision R CHF (A) | 0.0965 | * | -0.15% | ** | 4.92% | -0.0193 | -0.2849 | 90 |
| I-AM Vision R CHF (T) | 0.0168 | * | 0.01% | ** | 2.52% | 0.0034 | 0.0309 | 109 |
| I-AM Vision S-CHF (T) | -0.0064 | - | -0.01% | - | 1.17% | 0.0654 | -0.4696 | 34 |
| rA Glbl Micro & SME Fin Fd H II CHF | 0.0281 | - | -0.02% | - | 1.24% | -0.0083 | -0.0533 | 109 |
| rA Global Micro & SME Finance Fd H | 0.0273 | - | -0.05% | - | 1.17% | -0.0192 | -0.1193 | 109 |
| rA MicroandSME Finance Leadrs S | 0.0123 | - | 0.09% | * | 0.17% | 0.0724 | 0.1701 | 109 |
| Triodos CHI cap CHF | 0.1759 | - | 0.45% | - | 1.54% | 0.0175 | 0.1484 | 43 |
| rA MicroandSMEFinanceDebt I | 0.0098 | - | -0.07% | - | 0.07% | -0.0719 | -0.1080 | 109 |
| rA MicroandSMEFinanceDebt I II | -0.0095 | - | -0.02% | * | 0.10% | 0.0195 | -0.0346 | 109 |
| rA MicroandSMEFinanceDebt I-IV | 0.0000 | - | 0.08% | * | 0.00% | -11.7870 | 0.1480 | 49 |
| Finethic C CHF | 0.0040 | - | -0.01% | - | 0.27% | -0.0228 | -0.0679 | 109 |
| Finethic II CC | 0.0790 | * | -0.28% | * | 0.36% | -0.0489 | -0.2103 | 68 |
| | | | **FTSE WGBI** | | | | | |
| **GBP-denominated funds** | **Beta** | | **alpha** | | **$R^2$** | **Treynor** | **Sharpe** | **N** |
| BOMF - BO GBP DIS HDG | -0.0068 | - | 0.65% | *** | 25.20% | -0.9567 | 30.2511 | 5 |
| BOMF - BO GBP CAP HDG | -0.0050 | - | 0.65% | ** | 18.84% | -1.3011 | 30.5126 | 3 |
| BOMF - C GBP DIS HDG | -0.0047 | - | 0.57% | *** | 16.14% | -1.1927 | 30.1813 | 5 |
| BOMF - D GBP Cap Hgd | -0.0010 | - | 0.19% | *** | 0.15% | -1.9030 | 1.4427 | 92 |
| BOMF - C GBP CAP HDG | 0.0021 | - | 0.56% | ** | 6.21% | -2.2754 | 30.6380 | 3 |
| rA Global Micro&SME Finance Fnd IV | -0.1412 | - | 0.50% | * | 60.21% | -0.0296 | 1.2943 | 4 |
| Triodos KB Dis | 0.0045 | - | 0.03% | - | 0.02% | 0.0765 | 0.0331 | 30 |
| Triodos KI cap GBP | -0.0117 | - | 0.20% | *** | 0.13% | -0.1708 | 0.2430 | 109 |
| Triodos KI dis GBP | -0.0577 | - | 0.07% | - | 1.47% | -0.0105 | 0.0512 | 109 |

*** $p<0.01$ ** $p<0.05$ * $p<0.1$

*Source: Own calculations based on EIKON data*

**Table A. 5.** Matched pairs - CAPM regression result for EUR- and USD-denominated funds on an individual level in relation to the MSCI World and MSCI EM benchmark indices.

The beta coefficient, Jensen's alpha, R-squared, Treynor ratio, and Sharpe ratio are presented.

| | MSCI WORLD | | | | | | MSCI EM | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***EUR-denominated funds*** | **Beta** | | **alpha** | | **$R^2$** | **Treynor** | **Beta** | | **alpha** | | **$R^2$** | **Treynor** |
| BNP Paribas Green Tigers Classic EUR Cap | 0.7507 | *** | -0.29% | - | 47.83% | 0.0035 | 0.9101 | *** | 0.10% | * | 72.97% | 0.0029 |
| Triodos Z cap EUR | 0.0704 | * | 0.18% | ** | 11.83% | 0.0326 | 0.0423 | ** | 0.22% | *** | 4.42% | 0.0543 |
| BNP Paribas Selection Patrimoine Res. P | 0.3232 | ** | -0.25% | *** | 78.58% | -0.0004 | 0.2809 | * | -0.06% | - | 61.62% | -0.0004 |
| Triodos Z dis EUR | 0.0443 | * | -0.04% | - | 2.55% | -0.0008 | 0.0499 | ** | -0.01% | - | 3.37% | -0.0007 |
| ERSTE RESP. BOND V | 0.1611 | * | -0.19% | ** | 27.40% | -0.0046 | 0.1366 | * | -0.10% | - | 20.43% | -0.0054 |
| Luxembourg C Acc | -0.0079 | * | 0.07% | - | 2.82% | -0.0817 | -0.0041 | * | 0.06% | ** | 0.79% | -0.1573 |
| ERSTE RES. BOND EURO CORP A | 0.2091 | ** | -0.27% | *** | 37.17% | -0.0057 | 0.1984 | ** | -0.16% | * | 34.73% | -0.0060 |
| I-AM Vision I EUR (A) | 0.0155 | - | -0.07% | * | 1.16% | -0.0376 | 0.0311 | ** | -0.06% | - | 4.89% | -0.0187 |
| Mirova Euro Green&Sust. Corp Bond Fund IAE | 0.2286 | * | -0.19% | * | 38.95% | -0.0011 | 0.2093 | - | -0.06% | * | 33.89% | -0.0012 |
| I-AM Vision R EUR (A) | 0.0111 | - | -0.08% | ** | 0.82% | -0.0655 | 0.0255 | * | -0.08% | * | 4.46% | -0.0286 |
| Swisscanto (LU) PF Resp Balance (EUR) AA | 0.5065 | - | -0.20% | *** | 86.39% | 0.0035 | 0.4059 | *** | 0.10% | - | 57.60% | 0.0043 |
| Triodos B dis EUR | 0.0659 | *** | -0.06% | - | 5.47% | -0.0021 | 0.0617 | *** | -0.02% | - | 4.97% | -0.0022 |
| Swisscanto (LU) PF Resp Select (EUR) BT | 0.3449 | ** | -0.12% | - | 72.64% | 0.0040 | 0.2813 | * | 0.09% | ** | 50.16% | 0.0049 |
| GLS B | 0.0016 | - | -0.06% | - | 0.01% | -0.3423 | -0.0136 | - | -0.05% | - | 0.91% | 0.0413 |
| Swisscanto (LU) PF Resp Select (EUR) NT | 0.4306 | *** | -0.40% | ** | 76.41% | 0.0011 | 0.3437 | *** | 0.10% | - | 41.86% | 0.0014 |
| Triodos I-II cap EUR | 0.0600 | *** | 0.20% | * | 7.05% | 0.0402 | 0.0460 | *** | 0.24% | ** | 3.96% | 0.0524 |
| Warburg Invest Resp. - Corporate Bond I | 0.2165 | *** | -0.24% | ** | 34.08% | -0.0046 | 0.2023 | *** | -0.10% | - | 30.62% | -0.0049 |
| KCD-Mikrofinanzfonds - III | 0.0247 | * | -0.03% | - | 2.58% | -0.0028 | 0.0221 | * | -0.01% | - | 2.10% | -0.0031 |
| WATERLOO SICAV-SIF Gl SRI Inv R DEUR | 0.6537 | *** | -0.21% | - | 70.57% | 0.0093 | 0.5761 | *** | 0.41% | * | 47.71% | 0.0105 |
| ERSTE EUR R01 VTIA | -0.0004 | - | 0.06% | * | 0.01% | -1.6301 | -0.0060 | - | 0.06% | * | 1.71% | -0.1077 |
| | | | | | | | | | | | | |
| ***USD-denominated funds*** | | | | | | | | | | | | |
| Appleseed Fund | 0.8711 | - | -0.37% | * | 68.46% | 0.0021 | 0.6929 | - | 0.11% | - | 55.71% | 0.0026 |
| MicroandSME Finance Leadrs I USD | 0.0100 | - | 0.25% | ** | 0.69% | 0.2528 | 0.0040 | - | 0.25% | ** | 0.14% | 0.6379 |
| Azzad Wise Capital Fund | 0.1174 | * | -0.10% | *** | 69.86% | -0.0019 | 0.0878 | * | -0.03% | - | 50.27% | -0.0026 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Finethic S USD | 0.0008 | - | -0.05% | ** | 1.52% | -0.6050 | 0.0006 | - | -0.05% | ** | 1.07% | -0.8164 |
| Brown Advisory Sustainable Bond Fund | 0.1787 | ** | -0.33% | * | 27.15% | -0.0117 | 0.1748 | ** | -0.20% | - | 28.10% | -0.0120 |
| EMF AGmvK R T | 0.0003 | - | 0.31% | *** | 0.01% | 12.0567 | 0.0007 | - | 0.31% | *** | 0.09% | 4.5153 |
| Domini Impact Bond Fund | 0.1422 | * | -0.24% | * | 18.30% | -0.0104 | 0.1251 | * | -0.16% | * | 18.22% | -0.0118 |
| I-AM I USD T | 0.1299 | *** | 0.24% | *** | 27.79% | 0.0244 | 0.1463 | *** | 0.30% | ** | 45.30% | 0.0217 |
| Green Century Balanced Fund | 0.7121 | - | -0.45% | * | 87.88% | -0.0009 | 0.4436 | - | 0.19% | - | 38.14% | -0.0014 |
| MicroandSME Finance Leadrs I-IV USD | 0.0201 | - | 0.19% | *** | 3.46% | 0.1217 | 0.0156 | - | 0.26% | ** | 2.18% | 0.1575 |
| Parnassus Fixed Income Fund | 0.1397 | * | -0.23% | * | 17.96% | -0.0101 | 0.1204 | * | -0.15% | - | 17.16% | -0.0117 |
| MicroandSMEFinanceDebt I II USD | -0.0172 | * | 0.19% | *** | 3.64% | -0.1025 | -0.0184 | * | 0.18% | *** | 5.22% | -0.0958 |
| Praxis Impact Bond Fund A | 0.1271 | * | -0.22% | * | 16.95% | -0.0110 | 0.1156 | ** | -0.15% | - | 18.03% | -0.0121 |
| P USD Cap | 0.0055 | ** | 0.23% | *** | 3.31% | 0.4156 | 0.0041 | * | 0.23% | *** | 2.31% | 0.5639 |

*Source: Own calculations based on EIKON data*

*** $p<0.01$ ** $p<0.05$ * $p<0.1$

**Table A. 6.** Description of MFIFs

Full name, asset currency, domicile, asset fund as of 31 January 2024, asset status, inception date, ISIN for microfinance investment funds.

| **Fixed-Income Funds** | **Asset Currency** | **Domicile** | **Asset Fund TNA (Millions)** | **Asset Status** | **Inc. date** | **ISIN** |
|---|---|---|---|---|---|---|
| BOMF - Andbank USD | USD | Luxembourg | $ 2,600.90 | Liquidated | 29.01.2016 | LU1252236648 |
| BOMF - BO USD CAP | USD | Luxembourg | $ 2,600.90 | Active | 31.10.2023 | LU2630913965 |
| BOMF - BO EUR CAP HDG | USD | Luxembourg | $ 2,600.90 | Active | 31.10.2023 | LU2630913882 |
| BOMF - BO GBP CAP HDG | USD | Luxembourg | $ 2,600.90 | Active | 31.10.2023 | LU2630913700 |
| BOMF - BO GBP DIS HDG | USD | Luxembourg | $ 2,600.90 | Active | 31.08.2023 | LU2630914344 |
| BOMF - C USD CAP | USD | Luxembourg | $ 2,600.90 | Active | 31.10.2023 | LU2630913619 |
| BOMF - C EUR CAP HDG | USD | Luxembourg | $ 2,600.90 | Active | 31.10.2023 | LU2630913536 |
| BOMF - C GBP CAP HDG | USD | Luxembourg | $ 2,600.90 | Active | 31.10.2023 | LU2630913452 |
| BOMF - C USD DIS | USD | Luxembourg | $ 2,600.90 | Active | 31.08.2023 | LU2630914260 |
| BOMF - C EUR DIS HDG | USD | Luxembourg | $ 2,600.90 | Active | 31.08.2023 | LU2630914187 |
| BOMF - C GBP DIS HDG | USD | Luxembourg | $ 2,600.90 | Active | 31.08.2023 | LU2630914005 |

| | | | | | | |
|---|---|---|---|---|---|---|
| BOMF - D USD Cap | USD | Luxembourg | $ 2,600.90 | Active | 17.05.2016 | LU1399444022 |
| BOMF - D EUR Cap Hgd | USD | Luxembourg | $ 2,600.90 | Active | 17.05.2016 | LU1399444295 |
| BOMF - D CHF Cap Hgd | USD | Luxembourg | $ 2,600.90 | Active | 17.05.2016 | LU1399444378 |
| BOMF - D GBP Cap Hgd | USD | Luxembourg | $ 2,600.90 | Active | 17.05.2016 | LU1399444709 |
| BOMF - F EUR Cap Hgd | USD | Luxembourg | $ 2,600.90 | Active | 31.12.2019 | LU1982833557 |
| BOMF - H USD Cap | USD | Luxembourg | $ 2,600.90 | Active | 31.01.2018 | LU1697011721 |
| BOMF - H CAP EUR H | USD | Luxembourg | $ 2,600.90 | Active | 31.01.2018 | LU1697012026 |
| BOMF - I CHF Cap | USD | Luxembourg | $ 2,600.90 | Active | 31.10.2013 | LU0973079972 |
| BOMF - I EUR Cap | USD | Luxembourg | $ 2,600.90 | Active | 31.10.2013 | LU0973080392 |
| BOMF - I USD Cap | USD | Luxembourg | $ 2,600.90 | Active | 31.10.2013 | LU0973079543 |
| BOMF - I USD D | USD | Luxembourg | $ 2,600.90 | Active | 31.01.2022 | LU2407031496 |
| BOMF - N USD Cap | USD | Luxembourg | $ 2,600.90 | Active | 30.06.2014 | LU1079060619 |
| BOMF - N EUR Cap | USD | Luxembourg | $ 2,600.90 | Active | 30.06.2014 | LU1079060882 |
| BOMF - N CHF Cap | USD | Luxembourg | $ 2,600.90 | Active | 30.06.2014 | LU1079060700 |
| BOMF - P CHF Cap H | USD | Luxembourg | $ 2,600.90 | Active | 05.03.2003 | LU0136928586 |
| BOMF - P EUR Cap H | USD | Luxembourg | $ 2,600.90 | Active | 02.04.2003 | LU0164081316 |
| BOMF - P USD Cap | USD | Luxembourg | $ 2,600.90 | Active | 30.09.1998 | LU0091117944 |
| BOMF - S CAP CHF H | USD | Luxembourg | $ 2,600.90 | Active | 30.09.2016 | LU1399444618 |
| BOMF - S CAP EUR H | USD | Luxembourg | $ 2,600.90 | Active | 30.09.2016 | LU1399444535 |
| BOMF - S CAP USD | USD | Luxembourg | $ 2,600.90 | Active | 30.09.2016 | LU1399444451 |
| BOMF - S USD | USD | Luxembourg | $ 2,600.90 | Active | 30.11.2021 | LU2407031579 |
| EMF AGmvK (FO/T CHF) | USD | Liechtenstein | $ 622.40 | Active | 31.03.2021 | LI0544844314 |
| EMF AGmvK (FO/T EUR) | USD | Liechtenstein | $ 622.40 | Active | 30.09.2019 | LI0498082135 |
| EMF AGmvK (I/T CHF) | USD | Liechtenstein | $ 622.40 | Active | 30.10.2020 | LI0544844322 |
| EMF AGmvK (I/T EUR) | USD | Liechtenstein | $ 622.40 | Active | 30.10.2020 | LI0542527242 |
| EMF AGmvK A | USD | Liechtenstein | $ 622.40 | Merged | 24.10.2008 | LI0045795726 |
| EMF AGmvK CHF I/A CHF | USD | Liechtenstein | $ 622.40 | Active | 31.03.2021 | LI0594144581 |
| EMF AGmvK D (I/A) USD | USD | Liechtenstein | $ 622.40 | Active | 31.08.2020 | LI0562930367 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| EMF AGmvK D A CHF | USD | Liechtenstein | $ | 622.40 | Active | 30.09.2019 | LI0477626498 |
| EMF AGmvK D T | USD | Liechtenstein | $ | 622.40 | Active | 30.03.2012 | LI0146840744 |
| EMF AGmvK D T CHF | USD | Liechtenstein | $ | 622.40 | Active | 30.06.2019 | LI0477626480 |
| EMF AGmvK FO/A USD | USD | Liechtenstein | $ | 622.40 | Active | 26.02.2021 | LI0542527192 |
| EMF AGmvK R (I/T) USD | USD | Liechtenstein | $ | 622.40 | Active | 31.07.2020 | LI0542527226 |
| EMF AGmvK R F/T | USD | Liechtenstein | $ | 622.40 | Active | 30.03.2012 | LI0146840751 |
| EMF AGmvK R T | USD | Liechtenstein | $ | 622.40 | Active | 31.05.2019 | LI0477626506 |
| EMF AGmvK SN T | USD | Liechtenstein | $ | 622.40 | Merged | 31.05.2019 | LI0477626514 |
| EMF AGmvK T | USD | Liechtenstein | $ | 622.40 | Merged | 24.10.2008 | LI0045796468 |
| ERSTE EUR D01 (A) | EUR | Austria | € | 95.82 | Active | 29.12.2017 | AT0000A1YRW6 |
| ERSTE EUR I01 (T) | EUR | Austria | € | 95.82 | Active | 29.12.2017 | AT0000A1YRX4 |
| ERSTE EUR R01 (A) | EUR | Austria | € | 95.82 | Active | 4.01.2010 | AT0000A0G249 |
| ERSTE EUR R01 (VTIA) | EUR | Austria | € | 95.82 | Active | 17.04.2020 | AT0000A2EM29 |
| ERSTE EUR R01 T | EUR | Austria | € | 95.82 | Active | 4.01.2010 | AT0000A0G256 |
| I-AM Vision Local Currency - I CHF T | USD | Luxembourg | $ | 43.15 | Active | 27.12.2017 | LU0846183738 |
| I-AM Vision Local Currency - I EUR A | USD | Luxembourg | $ | 43.15 | Active | 27.02.2012 | LU0591910129 |
| I-AM Vision Local Currency - I EUR T | USD | Luxembourg | $ | 43.15 | Active | 27.09.2010 | LU0533938022 |
| I-AM Vision Local Currency - I USD A | USD | Luxembourg | $ | 43.15 | Liquidated | 27.12.2018 | LU0846183571 |
| I-AM Vision Local Currency - I USD T | USD | Luxembourg | $ | 43.15 | Active | 25.01.2011 | LU0548652287 |
| I-AM Vision Local Currency - R CHF T | USD | Luxembourg | $ | 43.15 | Active | 25.10.2012 | LU0846183811 |
| I-AM Vision Local Currency - R EUR A | USD | Luxembourg | $ | 43.15 | Active | 25.07.2011 | LU0591909972 |
| I-AM Vision Local Currency - R EUR T | USD | Luxembourg | $ | 43.15 | Active | 27.09.2010 | LU0533937727 |
| I-AM Vision Local Currency - R USD T | USD | Luxembourg | $ | 43.15 | Active | 25.05.2012 | LU0646936384 |
| IIV Mikrofinanzfonds Class I | EUR | Germany | € | 758.61 | Active | 10.10.2011 | DE000A1H44S3 |
| IIV Mikrofinanzfonds Class R | EUR | Germany | € | 758.61 | Active | 10.10.2011 | DE000A1H44T1 |
| responsAbSICAV(Lux)MicroandSMEFinanceDebt A | USD | Luxembourg | $ | 507.62 | Active | 29,05,2007 | LU0302153209 |
| responsAbSICAV(Lux)MicroandSMEFinanceDebt I CHF | USD | Luxembourg | $ | 507.62 | Active | 31.01.2013 | LU0825854945 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| responsAbSICAV(Lux)MicroandSMEFinanceDebt I EUR | USD | Luxembourg | $ | 507.62 | Active | 30.11.2012 | LU0826191198 |
| responsAbSICAV(Lux)MicroandSMEFinanceDebt I II CHF | USD | Luxembourg | $ | 507.62 | Active | 30.06.2014 | LU1050624276 |
| responsAbSICAV(Lux)MicroandSMEFinanceDebt I II EUR | USD | Luxembourg | $ | 507.62 | Active | 30.10.2015 | LU1303877564 |
| responsAbSICAV(Lux)MicroandSMEFinanceDebt I II USD | USD | Luxembourg | $ | 507.62 | Active | 30.10.2015 | LU1303877309 |
| responsAbSICAV(Lux)MicroandSMEFinanceDebt I-IV CHF | USD | Luxembourg | $ | 507.62 | Active | 31.12.2019 | LU1839501340 |
| SEB Microfinance Fund II A/D NH EUR Dis | EUR | Luxembourg | € | 39.50 | Liquidated | 02.06.2014 | LU1068869970 |
| SEB Microfinance Fund II B/C NH EUR Cap | EUR | Luxembourg | € | 39.50 | Liquidated | 02.06.2014 | LU1068870044 |
| SEB Microfinance Fund II B/D NH EUR Dis | EUR | Luxembourg | € | 39.50 | Liquidated | 02.06.2014 | LU1068870127 |
| Wallberg Global Microfinance I LIQ | EUR | Luxembourg | € | 6.64 | Liquidated | 21.10.2008 | LU0375612404 |
| Wallberg Global Microfinance P LIQ | EUR | Luxembourg | € | 6.64 | Liquidated | 21.10.2008 | LU0375612230 |
| Finethic S.C.A. SICAV SIF - Microfinance C CHF | USD | Luxembourg | $ | 75.78 | Active | 31.05.2010 | LU0504540880 |
| Finethic S.C.A. SICAV SIF - Microfinance C USD | USD | Luxembourg | $ | 75.78 | Active | 31.05.2010 | LU0262965956 |
| Finethic S.C.A. SICAV SIF - Microfinance S USD | USD | Luxembourg | $ | 75.78 | Active | 29.01.2010 | LU0338488116 |
| Finethic SCA SICAV SIF Finethic Microfinance II C | USD | Luxembourg | $ | 3.99 | Liquidated | 29.04.2016 | LU1386672601 |
| Finethic SCA SICAV SIF Finethic Microfinance II CC | USD | Luxembourg | $ | 3.99 | Liquidated | 30.06.2010 | LU1386672866 |
| Finethic SCA SICAV SIF Finethic Microfinance II F | USD | Luxembourg | $ | 3.99 | Liquidated | 29.04.2016 | LU1386674052 |
| Global Microfinance Debt (FoF) -I- | USD | Luxembourg | $ | 36.94 | Active | 31.10.2016 | LI0339972288 |
| I-AM Vision Microfinance - I CHF (A) | EUR | Luxembourg | € | 649.47 | Active | 25.04.2013 | LU0846183142 |
| I-AM Vision Microfinance - I CHF (T) | EUR | Luxembourg | € | 649.47 | Active | 25.07.2012 | LU0306116830 |
| I-AM Vision Microfinance - I EUR (A) | EUR | Luxembourg | € | 649.47 | Active | 25.01.2011 | LU0563441954 |
| I-AM Vision Microfinance - I EUR (T) | EUR | Luxembourg | € | 649.47 | Active | 27.08.2007 | LU0306115196 |
| I-AM Vision Microfinance - I USD (A) | EUR | Luxembourg | € | 649.47 | Active | 25.03.2015 | LU0846183068 |
| I-AM Vision Microfinance - I USD (T) | EUR | Luxembourg | € | 649.47 | Active | 25.04.2012 | LU0306116160 |
| I-AM Vision Microfinance - R CHF (A) | EUR | Luxembourg | € | 649.47 | Merged | 25.07.2016 | LU0846182920 |

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|---|---|---|---|---|---|---|---|
| I-AM Vision Microfinance - R CHF (T) | EUR | Luxembourg | € | 649.47 | Active | 10.04.2012 | LU0236783907 |
| I-AM Vision Microfinance - R EUR (A) | EUR | Luxembourg | € | 649.47 | Active | 25.03.2011 | LU0563441798 |
| I-AM Vision Microfinance - R EUR (T) | EUR | Luxembourg | € | 649.47 | Active | 25.04.2006 | LU0236782842 |
| I-AM Vision Microfinance - R USD (A) | EUR | Luxembourg | € | 649.47 | Active | 27.06.2016 | LU0846182847 |
| I-AM Vision Microfinance - R USD (T) | EUR | Luxembourg | € | 649.47 | Active | 26.08.2013 | LU0646936202 |
| I-AM Vision Microfinance - S EUR (A) | EUR | Luxembourg | € | 649.47 | Active | 30.06.2021 | LU2271353364 |
| I-AM Vision Microfinance - S USD (T) | EUR | Luxembourg | € | 649.47 | Active | 31.03.2021 | LU2271353109 |
| I-AM Vision Microfinance - S-CHF (T) | EUR | Luxembourg | € | 649.47 | Active | 31.03.2021 | LU2271353281 |
| Luxembourg Microfinance And Development Fund A Acc | EUR | Luxembourg | € | 53.19 | Active | 31.12.2009 | LU0456965887 |
| Luxembourg Microfinance And Development Fund B Acc | EUR | Luxembourg | € | 53.19 | Active | 31.12.2009 | LU0456966935 |
| Luxembourg Microfinance And Development Fund C Acc | EUR | Luxembourg | € | 53.19 | Active | 31.03.2010 | LU0456967404 |
| KCD-Mikrofinanzfonds - III | EUR | Luxembourg | € | 124.95 | Active | 30.01.2015 | LU1106543249 |

| **Mixed-Allocation Funds** | **Asset Currency** | **Domicile** | **Asset Fund TNA (Millions)** | | **Asset Status** | **Inc date** | **ISIN** |
|---|---|---|---|---|---|---|---|
| ResponsAbility Glbl Micro & SME Fin Fd H II CHF | USD | Luxembourg | $ | 621.12 | Active | 30.04.2014 | LU1050624433 |
| ResponsAbility Glbl Micro & SME Fin Fd H II EUR | USD | Luxembourg | $ | 621.12 | Active | 30.04.2014 | LU1050624516 |
| ResponsAbility Glbl Micro & SME Fin Fd II USD | USD | Luxembourg | $ | 621.12 | Active | 30.04.2014 | LU1050624359 |
| ResponsAbility Global Micro & SME Finance Fd H CHF | USD | Luxembourg | $ | 621.12 | Active | 23.12.2003 | LU0180190604 |
| ResponsAbility Global Micro & SME Finance Fd H EUR | USD | Luxembourg | $ | 621.12 | Active | 26.01.2005 | LU0180190273 |
| ResponsAbility Global Micro and SME Finance Fund B | USD | Luxembourg | $ | 621.12 | Active | 25.11.2003 | LU0180189770 |
| ResponsAbility Global Micro and SME Finance Fnd IV | USD | Luxembourg | $ | 621.12 | Active | 28.09.2023 | LU2661073747 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| responsAbility MicroandSME Finance Leadrs I USD | USD | Luxembourg | $ | 277.39 | Active | 30.08.2010 | LU0520962514 |
| responsAbility MicroandSME Finance Leadrs I-IV USD | USD | Luxembourg | $ | 277.39 | Active | 26.02.2021 | LU1839500961 |
| responsAbility MicroandSME Finance Leadrs S CHF | USD | Luxembourg | $ | 277.39 | Active | 30.08.2010 | LU0520962605 |
| responsAbility MicroandSME Finance Leadrs S EUR | USD | Luxembourg | $ | 277.39 | Active | 29.10.2010 | LU0520963082 |
| Triodos Microfinance Fund B cap EUR | EUR | Luxembourg | € | 449.68 | Active | 02.06.2009 | LU0406596501 |
| Triodos Microfinance Fund B dis EUR | EUR | Luxembourg | € | 449.68 | Active | 02.06.2009 | LU0407946978 |
| Triodos Microfinance Fund CHI cap CHF | EUR | Luxembourg | € | 449.68 | Active | 30.06.2020 | LU2168316599 |
| Triodos Microfinance Fund I cap EUR | EUR | Luxembourg | € | 449.68 | Active | 01.04.2009 | LU0402513328 |
| Triodos Microfinance Fund I dis EUR | EUR | Luxembourg | € | 449.68 | Active | 27.02.2009 | LU0402513674 |
| Triodos Microfinance Fund I-II cap EUR | EUR | Luxembourg | € | 449.68 | Active | 28.04.2017 | LU1569868281 |
| Triodos Microfinance Fund KB Dis | EUR | Luxembourg | € | 449.68 | Liquidated | 01.06.2010 | LU0464591139 |
| Triodos Microfinance Fund KI cap GBP | EUR | Luxembourg | € | 449.68 | Active | 30.04.2018 | LU0402513914 |
| Triodos Microfinance Fund KI dis GBP | EUR | Luxembourg | € | 449.68 | Active | 27.02.2009 | LU0402514052 |
| Triodos Microfinance Fund P cap EUR | EUR | Luxembourg | € | 449.68 | Active | 29,11.2019 | LU2031323871 |
| Triodos Microfinance Fund R cap EUR | EUR | Luxembourg | € | 449.68 | Active | 01.07.2009 | LU0402511389 |
| Triodos Microfinance Fund R dis EUR | EUR | Luxembourg | € | 449.68 | Active | 01.07.2009 | LU0402512866 |
| Triodos Microfinance Fund Z cap EUR | EUR | Luxembourg | € | 449.68 | Active | 31.10.2013 | LU0842298738 |
| Triodos Microfinance Fund Z dis EUR | EUR | Luxembourg | € | 449.68 | Active | 31.10.2013 | LU0842303249 |
| GLS Alternative Investments Mikrofinanzfonds A | EUR | Luxembourg | € | 227.60 | Active | 15.12.2015 | LU1309710678 |
| GLS Alternative Investments Mikrofinanzfonds C | EUR | Luxembourg | € | 227.60 | Active | 15.12.2015 | LU1323423696 |
| GLS Alternative Investments Mikrofinanzfonds B | EUR | Luxembourg | € | 227.60 | Active | 15.12.2015 | LU1309711056 |

*Source: EIKON data*

**Table A. 7.** Description of SRIs

Full name, asset currency, domicile, asset fund as of 31 January 2024, asset status, inception date, ISIN for socially responsible investment funds.

| **Fixed-Income Funds** | **Asset Currency** | **Domicile** | **Asset Fund TNA (Millions)** | | **Asset Status** | **Inc. date** | **ISIN** |
|---|---|---|---|---|---|---|---|
| ERSTE RESPONSIBLE BOND V | EUR | Austria | € | 59.55 | Active | 30.11.2012 | AT0000A0WLW5 |
| ERSTE RESPONSIBLE BOND EURO CORPORATE A | EUR | Austria | € | 455.77 | Active | 02.05.2011 | AT0000A0PHH8 |
| Azzad Wise Capital Fund | USD | USA | $ | 208.22 | Active | 06.05.2010 | US0550603056 |
| Domini Impact Bond Fund | USD | USA | $ | 109.64 | Active | 30.11.2011 | US2571328291 |
| Parnassus Fixed Income Fund | USD | USA | $ | 377.35 | Active | 30.05.2015 | US7017657039 |
| Mirova Euro Green And Sustainable Corp Bd Fd IAE | EUR | Luxembourg | € | 470.72 | Active | 08.07.2011 | LU0552643685 |
| WATERLOO SICAV-SIF Global Socially Resp Inv R DEUR | EUR | Luxembourg | € | 26.68 | Active | 03.03.2020 | LU2093618929 |
| Brown Advisory Sustainable Bond Fund | USD | USA | $ | 542.25 | Active | 02.07.2018 | US1152333894 |
| Praxis Impact Bond Fund A | USD | USA | $ | 596.42 | Active | 12.05.1999 | US74006E5042 |
| Warburg Invest Responsible - Corporate Bond I | EUR | Germany | € | 24.83 | Active | 15.04.2015 | DE000A111ZL9 |

| **Mixed-Allocation Funds** | **Asset Currency** | **Domicile** | **Asset Fund TNA (Millions)** | | **Asset Status** | **Inc. date** | **ISIN** |
|---|---|---|---|---|---|---|---|
| Swisscanto (LU) PF Resp Balance (EUR) AA | EUR | Luxembourg | € | 255.12 | Active | 15.09.1999 | LU0112804983 |
| Swisscanto (LU) PF Resp Select (EUR) BT | EUR | Luxembourg | € | 287.56 | Active | 20.05.2015 | LU0999466104 |
| Swisscanto (LU) PF Resp Select (EUR) NT | EUR | Luxembourg | € | 287.56 | Active | 22.10.2020 | LU2243966947 |
| Green Century Balanced Fund | USD | USA | $ | 388.76 | Active | 30.11.2020 | US3927687018 |
| BNP Paribas Green Tigers Classic EUR Cap | EUR | Luxembourg | € | 500.41 | Active | 24.05.2013 | LU0823437925 |
| Appleseed Fund | USD | USA | $ | 92.07 | Active | 31.12.2011 | US90470K1640 |
| BNP Paribas Selection Patrimoine Responsable P | EUR | France | € | 334.76 | Active | 30.10.2013 | FR0011572502 |

*Source: EIKON data*

## Description of the Funds

All the information and description are collected from EIKON under the description menu and also from the official documents of the funds, such as report and prospectus.

**Microfinance Investment Funds**

**BlueOrchard Microfinance Fund (BOMF)**

Fund type: SICAV (Société d'Investissement à Capital Variable). Incorporated in Luxembourg, aims to expand access to financial services across the developing world for a large proportion of the population. BOMF provides debt capital to institutions that focus on serving economically and environmentally vulnerable communities in more than fifty emerging markets around the world with a strong and consistent focus on ensuring that MSME lending is conducted in an equitable, transparent, and ultimately beneficial manner.

Each investment in the Fund is selected on the basis of BlueOrchard's rigorous ESG and impact management framework, which ensures that ESG risks and impact objectives are incorporated in each investment decision.

**EMF Microfinance Fund AGmvK**

Incorporated in Lichtenstein, the fund's aim is to help create prosperity for local underprivileged population groups by providing direct finance for entrepreneurial activities in developing and emerging markets. The fund achieves this purpose by investing in local, successful, and promising financial service providers – MFIs. As MFIs are able to offer specific services for such population groups. The fund invests in fixed-interest or variable-interest securities. The fund invests in investment instruments with short (six to eighteen months) to medium-term (three to five years) maturities. As a rule, however, the average maturity is two to three years. The investments are made mainly in USD.

**Erste Responsible Microfinance**

Incorporated in Austria, the fund invests mainly in microfinance. The objective is to achieve long term income generation through purchasing microfinance funds or bonds on microfinance instruments and funds. They purchase up to 10% shares in companies and microfinance institutions. The funds are classified as fund-of-funds.

**Finethic S.C.A., SICAV-SIF, Microfinance**

Fund type: SICAV (Société d'Investissement à Capital Variable). Incorporated in Luxembourg, the fund's objective is to invest its assets in the microfinance field, more precisely, to finance unlisted MFIs for the development of economic activities of micro-entrepreneurs from around the world, especially in emerging markets. It can directly provide equity and debt financing or indirectly by investing in investment vehicles that are active in the microfinance field.

**Global Microfinance Debt (FoF)**

Inception Date – 31 October 2016. Incorporated in Lichtenstein, the fund's objective is to achieve adequate performance. At least 80% of its assets are invested in traditional and non-traditional investments, all of which invest in whole or in large part directly or indirectly in microfinance institutions around the world.

**GLS Alternative Investments - Mikrofinanzfonds**

Inception Date – 15 December 2015. Fund type: SICAV (Société d'Investissement à Capital Variable). Incorporated in Luxembourg, the fund's aim is to provide access to the borrowers in emerging and developing countries to the capital market. The fund intends to promote economic growth worldwide for poor populations who do not have access to reliable financial services.

**I-AM Vision Microfinance**

Inception Date – 2007. Fund type: SICAV (Société d'Investissement à Capital Variable). Incorporated in Luxembourg, the fund aims to generate income from loan transactions. It offers investors access to impact investments and invests primarily in fixed-interest investments from carefully selected microfinance institutions (MFIs) in developing and emerging countries. The aim of the microfinance fund is to enable financial inclusion and, thereby, sustainable and long-term development through investments in the poorest countries. This is done directly by holding carefully selected MFI debt securities or indirectly through Collateral Debt Obligations.

**I-AM Vision Microfinance Local Currency**

Inception Date – 2010. Fund type: SICAV (Société d'Investissement à Capital Variable). Incorporated in Luxembourg, the fund contains mostly fixed-income investments, it mainly invests in the form of direct loans in microfinance institutions in developing and emerging countries. The microfinance loans are denominated in the respective local currencies. It allows MFIs to grant micro-loans to low-income people. This support contributes to the development of their small businesses and gives them the opportunity for a sustainable, successful future.

**IIV Mikrofinanzfonds**

Inception Date – 10 October 2011. Incorporated in Germany, the fund invests in microfinance institutions in developing and emerging countries, which are selected by strict financial and social criteria. The selected MFIs support the borrowers with training programs, among other social benefits. The fund invests around the world, but the main markets are South America, Central Asia, and South East Asia. The focus of IIV's investment solutions is to provide debt capital to financial service providers in emerging markets.

**KCD-Mikrofinanzfonds - III**

Inception Date - 30 January 2015. Incorporated in Luxembourg, the fund's aim is to pursue the double-bottom approach. To contribute to society and, at the same time, increase value while taking into account the investment risk. The fund's objective is to provide access to basic financial services for people in emerging and developing countries.

**Luxembourg Microfinance And Development Fund**

Incorporated in Luxembourg, the fund aims to alleviate poverty around the world by supporting organizations that empower people and promote entrepreneurship, with a focus on the most excluded. The fund is oriented to build sustainable links between investors, microfinance institutions, and ultimate beneficiaries. It facilitates the growth of promising MFIs so that they can support marginalized communities and individuals in emerging countries.

**responsAbility SICAV (Lux) Global Micro and SME Finance Fund**

Inception Date – 25 November 2003. Fund type: Fonds Commun de Placement, partie II (FCP). Incorporated in Luxembourg, the fund makes a comprehensive contribution to achieving the United Nations' Sustainable Development Goals (SDGs). Financial inclusion is at the heart of the Impact Strategy, which aims to support small and medium-sized enterprises (SMEs) who still lack adequate access to financial services. In addition, the Impact Strategy targets global sustainable food production, in which millions of small farmers play a crucial role. The fund's investment strategy focuses on short- to medium-term debt investments with a limited allocation to equity, from financial institutions active in the field of micro and SME financing.

**responsAbility SICAV (Lux) Micro and SME Finance Debt Fund**

Inception Date – 29 May 2007. Fund type: SICAV (Société d'Investissement à Capital Variable). Incorporated in Luxembourg, the fund is focused on private debt investments in the emerging market financial sector to generate consistent returns. It invests in successful financial institutions that are actively oriented on financial inclusion of micro-entrepreneurs and small and medium –sized enterprises. The fund is, therefore, uniquely positioned to provide investors with market returns and deliver a strong impact related to the SDGs by promoting financial inclusion.

**responsAbility SICAV (Lux) Micro and SME Finance Leaders**

Inception Date – 29 November 2006. Fund type: SICAV (Société d'Investissement à Capital Variable). Incorporated in Luxembourg, the fund aims to provide financial services to emerging markets. It invests mainly in short-to-medium-term private debt and selectively in private equity with local, successful financial institutions that are active in the financial inclusion of micro-entrepreneurs and small and medium-sized enterprises. The fund applies strict risk-return selection criteria based on a rigorous investment process.

**Symbiotics SICAV (Lux) - SEB Microfinance Fund II**

Inception Date – 02 June 2014. Fund type: SICAV (Société d'Investissement à Capital Variable). Incorporated in Luxembourg, the fund's aim is to enable institutional investors to provide capital for developing markets. It pooled capital directly into microfinance institutions. The fund invests in local currency fixed-income type of assets. The fund pursues a double bottom-line return and provides a positive social impact. The fund was liquidated in 2019.

**Triodos SICAV II - Triodos Microfinance Fund**

Inception Date – 10 April 2006. Fund type: SICAV (Société d'Investissement à Capital Variable). Incorporated in Luxembourg, the fund's aim is to empower people and small businesses around the world. The fund provides private debt and equity to financial service providers. Its objective is to promote individual well-being through the advancement of financial inclusion and to transform the financial system for a sustainable future.

**Wallberg Global Microfinance**

Inception Date – October 2010. Incorporated in Luxembourg, the fund's aim is to support people in need around the world. It provides investment for the microfinance sector, and the important part of its investment is the high-yield component. The fund was liquidated in 2022.

**Socially Responsible Investment funds**

**Appleseed Fund**

Incorporated in the USA. The fund seeks to provide long-term capital appreciation. The fund is focused on investing in securities and companies that are oriented toward the environment.

**Azzad Wise Capital Fund**

Incorporated in the USA. The fund seeks to provide shareholders with capital preservation and income. The fund's aim is to invest in bonds that generate environmental and social benefits.

**BNP Paribas Green Tigers Classic**

Incorporated in Luxembourg. The fund aims to invest in companies that are based in the Asia-Pacific region and that are delivering solutions to environmental challenges. It helps the transition into a sustainable world by focusing on challenges related to the environment. This fund is a mixed allocation fund.

**BNP Paribas Selection Patrimoine Responsable**

Incorporated in France. The objective of the fund is to achieve the best performance through discretionary management and asset allocation based on the selection of UCITS or FIAs incorporating sustainable development criteria.

**Brown Advisory Sustainable Bond Fund**

Incorporated in the USA. The fund seeks to provide comprehensive total return consistent with the preservation of principal while considering certain environmental, social, and governance criteria. It invests in fixed-income securities with a maturity between 0 and 30 years.

**Domini Impact Bond Fund**

Incorporated in the USA. The fund seeks a high level of current income and total return by investing at least 85% of its assets in investment-grade bonds and other debt instruments that meet the fund's social and environmental criteria.

**Erste Responsible Bond V**

Incorporated in Austria. The fund's main objective is environmental. At least 51% of its assets are invested in EUR-denominated investment-grade sustainable bonds to achieve this objective.

**Erste Responsible Bond Euro Corporate A**

Incorporated in Austria. The fund's investment objective is to increase the value of the ethically sustainable investment criteria. To achieve this objective, at least 51% of its assets are invested in EUR-denominated bonds issued by companies domiciled in Europe and classified in the investment-grade segment.

**Green Century Balanced Fund**

Incorporated in the USA. The fund seeks capital growth and income generation from a diversified portfolio of stocks and bonds, which meet the fund's standards for corporate environmental responsibility. The fund aims to invest in well-managed companies.

**Mirova Euro Green & Sustainable Corporate Bond Fund**

Fund type: SICAV (Société d'Investissement à Capital Variable). Incorporated in Luxembourg, the fund's aim is to invest in green bonds that generate environmental and social benefits. The fund mainly invests in euro-denominated corporate bonds with a minimum 3-year investment period.

**Parnassus Fixed Income Fund**

Incorporated in the USA. The fund invests primarily in investment-grade bonds and is dedicated to environmental integration. It is a fixed-income fund and seeks a high level of current income consistent with safety.

**Praxis Impact Bond Fund**

Incorporated in the USA. The fund primarily invests in investment-grade intermediate-term fixed-income securities of companies that are dedicated to environment and ESG data integration.

**Swisscanto (LU) Portfolio Fund Responsible Select (EUR) BT**

Incorporated in Luxembourg, the fund's aim is to generate a return by investing in EUR by investing primarily in bonds worldwide. The equity portion is 10% - 35%. The fund focuses on responsible investing principles and considers ESG factors in its investment decisions.

**Swisscanto (LU) Portfolio Fund Responsible Balance (EUR) AA**

Incorporated in Luxembourg, the fund's aim is to generate a return by investing in EUR by investing primarily in bonds worldwide. The equity portion is 10% - 35%. The fund focuses on responsible investing principles and considers ESG factors in its investment decisions.

**Swisscanto (LU) Portfolio Fund Responsible Select (EUR) NT**

Incorporated in Luxembourg, the fund's aim is to generate a return by investing in EUR by investing primarily in bonds worldwide. The equity portion is 10% - 35%. The fund focuses on responsible investing principles and considers ESG factors in its investment decisions.

**Warburg Invest Responsible**

Incorporated in Germany. The aim of the fund is to generate long-term growth in the value of assets that meet ethical and sustainable criteria. The fund invests at least 51% of its assets in interest-bearing securities of domestic and foreign companies. The selection of interest-bearing securities is based on extensive ethical and sustainable analysis.

**Waterloo SICAV-SIF Global Socially Responsible Investment**

Fund type: SICAV (Société d'Investissement à Capital Variable). Incorporated in Luxembourg, the funds focus on ESG factors in investment decisions together with financial considerations. The fund invests its assets in a selection of ETFs or UCITS / UCIs.