GREEN ASSET MANAGEMENT – A REVOLUTION?

Ann-Kathrin Arp[1], Jan Kiehne[2] and Timm Schüler[3]
[1) 2) 3)] *The Bucharest University of Economic Studies, Romania*
Doctoral School of Business Administration
E-mail: annkathrin_arp@web.de, E-mail: jan.kiehne@gmail.com,
E-mail: timmcs@gmx.net

Abstract
Sustainability and eco friendliness resound throughout the public in all areas of life. Notably, this green trend has remarkably evolved in the last five years, supported by the concept of the Green Economy – a combination of profitability and ecological sustainability introduced at the Rio+20 Conference in 2012. This paper deals which the question of whether the trend has reached the capital markets, and thereby, whether the performance of ethical or eco-friendly funds has improved in the last five years. After a short review of the released literature, the authors determine criteria for the empirical research including financial performance figures, correlations and chart analysis in order to compare sustainable investments to the benchmark of conventional investments. Finally, the authors identify the challenges of the empirical research regarding sustainable.

Keywords: Social responsible investments (SRI); environmental, social and governance (ESG); fund performance measurement; Green Economy; Green Asset Management

JEL Classification: Q55, Q56, G15

Introduction

Nowadays sustainability and "to be green" have evolved into new megatrends, in addition to their already-important impact on the environment. By following the actual development of the global economy, the probability of a destruction of the ecological system will rise through a higher consumption of raw materials. On the other hand, an economic growth in order to fulfil the needs of an increasing world population cannot be dismissed.

The concept of a Green Economy takes up this dilemma and applies an eco-friendly growth to the economy, with consideration of ecological limits. A transformation into a Green Economy and Society impacts on all areas of economic sectors: The percentage of organically produced and discarnate groceries is continuously rising. The industry completes its productions with more efficient technologies like renewable energy and resource-conserving manufacturing. Green services are already offering carbon neutral transportation and tourism.

Even the financial market has enlarged its variety of products through social and responsible investments (SRI) considering environmental criteria and social components.

At present, the SRI have a niche part in the stock market, however sustainable money investments enjoy rising popularity, which have doubled in five years (Forum Nachhaltige Geldanlagen, 2016, p. 34).
Although this is positive movement, this niche position could be an indication that most of the investors have reservations regarding sustainable investments and their performance. This attitude could prove shortsighted as business theories forecast external effects caused by not sustainable acting entities: Unsustainable entity practices gain profit at others' risk and expense and cannot have a long life expectancy with regard to the theories as the following example illustrates: A fishing company is fishing so much fish that the stock has no possibility to recover. As the fish stock will collapse after a certain amount of time. This will be the end of the fishing industry as well.
The authors deal with the question whether the green trend has had an impact on the fund performance of sustainable investments. Through literature research, ethical investments will be determined and described. Throughout the selection criteria an amount of more than twenty funds have been empirically investigated by their net asset values per share covering a ten years' span.

1. Literature review

At the beginning of the research the authors started to screen released publications in order to create a list of criteria and definitions of a socially responsible fund by studying different theories.
Sustainability is old hat at the capital markets. The first time investors and asset managers dealt with sustainable investments called "ethical" or "green" investments, with a special focus on environmentally friendly assets, was in the late 1990s. In fact, because of the public belief that ethical investments underperform the non-ethical investments, most of the investors were tended to be of the more churchly-going kind.
Since then, there have been many changes in the capital markets with respect to ethical investments. The term "ethical investment" is selected and described by Environment, Social and Governance (ESG)-criteria in most of the released publications.
EIRIS describes an ethical fund as "[...] a fund where the choice of investments is influenced by one or more social, environmental or other ethical criteria" (EIRIS, 2017). An IMF Working Paper by Eyraud et al. (2011) identified ethical funds as "the investment necessary to reduce greenhouse gas and air pollutant emissions, without significantly reducing the production and consumption non-energy goods". Schäfer (2005) states the all types of investment can be called ethical or sustainable provided that the investment decision includes ethical or eco-friendly and conventional investment criteria. Furthermore, ethical investments are described as investment forms which contribute development to a sustainable future by a comprehensive analysis of the target investments. The analysis includes economic, social and environmental components (Hoffmann, Scherhorn and Busch, 2004). The European Sustainable Investment Forum (EUROSIF) defines socially responsible investing as a "[...] generic term covering ethical, responsible investments, sustainable investments, and any other investment process that combines investors' financial objectives with their concerns about environmental, social, and governance (ESG) issues" (EUROSIF, 2016). The World Economic Forum (WEF) specifies sustainable and responsible investing as an „[...] approach that integrates long-term ESG criteria into investment and ownership decision-making with the objective of generating superior risk-adjusted financial returns. These extra-financial criteria are used alongside traditional

financial criteria such as cash flow and price- to-earnings ratios. The focus on superior risk-adjusted financial returns distinguishes sustainable investing from similar-sounding approaches such as "impact investing" or "socially responsible investing" in which lower financial returns may be accepted as a trade-off for meeting social or environmental goals" (WEF, 2011, pp.10). Other research (Lundberg, Novak and Vikman, 2009) suggests, amongst others, that SRI must have a "[...] clearly expressed ethical policy and a clearly expressed screening method. [...] This information must be published in a written report."

The research has already identified several denominations of ethical investments, such as ESG funds, sustainable funds or SRI, and the consensus has been SRI (Rathner, 2013). Therefore, the authors will use this term for all sustainable assets.

During the research we recognized no consistent details of what kind of target investments are permitted or not. But nearly all publications introduce the same methods of screening of how SRIs select their assets.

Negative screening is where companies may be excluded or "screened out" from investments because of their involvement in certain activities deemed to be negative, such as polluters, arms companies or animal testers. This approach also applies where companies are included and "screened in" for their positive contributions to society and the environment such as those providing renewable energy, waste and recycling services, or organic farming (EIRIS, 2017; Schäfer, Bauer and Bracht, 2015, pp.7).

By filtering for negative and positive criteria, the amounts of possible assets decrease rapidly. A fund investing in a small amount of assets infringes against its principles of diversity. The stricter the screening criteria the fewer assets which are available. In order to keep the selection wide, most of the asset managers prefer the best-in-class approach.

A best-in-class approach applies social, environmental and ethical guidelines to give a preferred selection when all other factors are equal. For example, an ethical fund might have criteria that enables it to invest in the oil and gas sector, but only in those oil companies which are "best in their class" as they have a better record on the environment and human rights than others. (EIRIS, 2017).

Based on their literature review the authors created their own list of negative and positive criteria in order to select ethical investment funds for the performance analysis based on the research and the United Nations Principles for Responsible Investment (UN PRI, 2017). (Table no. 1)

Table no. 1: Selection criteria of ethical investment fund

Negative critera	Positive criteria
• firms that allow compulsory labor, child labor, dangerous working conditions (e.g. mining) • companies involved in the alcohol, drugs or tobacco industry • firms that gain profit from gambling • firms involved in the adult entertainment industry • producers of weapons or other war supplies • providers of nuclear equipment • firms with a negative impact on the environment: air pollution, water pollution, dangerous waste (e.g. special chemicals)	• companies with exemplary recycling or waste management • providers of renewable energy • firms giving a contribution to the environment or society • companies offering innovative products or services (e.g. energy efficient, less waste, recycled material)

2. Empirical research

First, as the empirical analysis has to comprise a representative period of ten years, the authors have excluded SRI which have been launched after 2007. Furthermore, the funds must still be tradable. Liquidated funds have been excluded as well. Mergers and consolidations have been neglected if the fund under review has not been merged.

The assets have to be listed and tradable for all investors at the German stock exchange. Given that special investment funds have to publish less data; the research focuses on retail funds. This information is available on the Bloomberg description, as well as the asset classification and the attribute of the fund. The authors have concentrated on equity funds with "socially responsible", "environmentally friendly" or similar attributes.

This cluster is an accumulation of the sample funds attached in the appendix A. The performance of the sample can be measured by the net asset value (NAV) per share. The NAV is the calculated value of the fund including all assets, cash and receivables, less debts and costs. The NAV per share is found by dividing the NAV by the outstanding units, released on a daily basis on Bloomberg. Finally, the NAV data were aggregated using the arithmetic average.

In order to qualify the aggregated data, the authors have compared the performance of the aggregated funds with the MSCI ESG Index. This index "[..] provides exposures to companies within environmental, social or governance performance relative to their sector peer" (MSCI Inc., 2017). This index covers nearly the same period of ten years as the selected assets. The figures are published in USD and converted to EUR based on the European Central Bank (ECB) rates by the authors.

Analyzing the performance of SRIs and the MSCI ESG Index requires a reference value. The authors decided to analyze the iShares MSCI World ETF as the investigated SRIs are equity funds. Furthermore, the assets of the funds are not limited geographically.

The publication of the NAV per share does not happen on holidays or weekends. In order to create a data basis for every single day, the missing value is replenished by the NAV per share of the previous day.

3. Results

The results show three stock charts. The first graph indicates the performance of the aggregated SRI. The mark of the financial crisis in 2008 becomes apparent as the performance halves between 2007 and the end of 2008. The prices start to recover at the beginning of 2009 with a minor fall back at the end of 2011. (Figure no. 1)

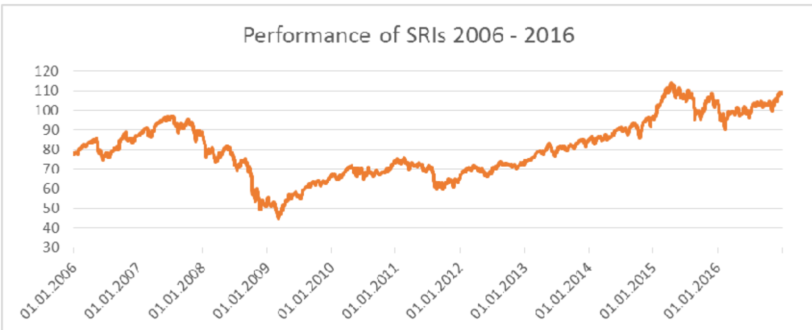

Figure no. 1: NAV per share of SRI 2006 - 2016

Attention should be paid to the volatility of the price movement which is quite low. Throughout the chart analysis, a firm and evolving upward trend is evident in the last five years. The development increases up to 65 percent from 2012 to 2016, as shown in table no. 2. Furthermore, the upwards trend seems to continue in 2017.

Table no. 2: SRI performance between 2012 and 2016

Period under review		Performance
01.01.12	31.12.12	10,42%
01.01.12	31.12.13	29,24%
01.01.12	31.12.14	47,24%
01.01.12	31.12.15	59,94%
01.01.12	31.12.16	64,87%

The second chart qualifies the performance of the examined SRI and compares it to the MSCI ESG Index between 2006 and 2012.

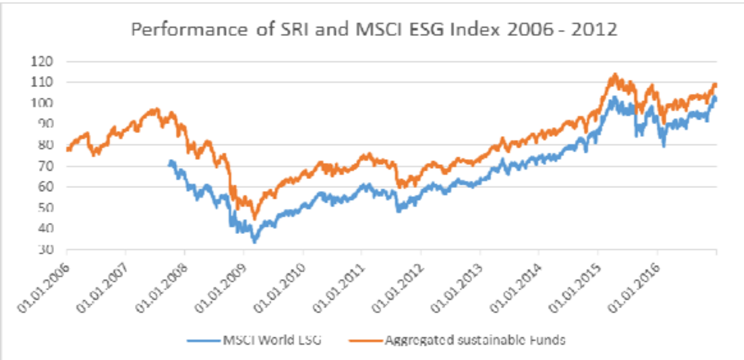

Figure no. 2: NAV per share of SRI and MSCI ESG Index 2006 – 2016

The chart implies a high correlation between the index and the SRI performance which is confirmed by the calculated coefficient of correlation of 0,9812. The coefficient expresses a high positive dependency of the SRI on the index. If the index increases, the performance of the SRI will increase nearly equally. The index also registers an upward trend in the last five years.

The influence of the financial crisis in 2008 on the iShares MSCI World ETF shown in figure no. 3 is clearly higher than on the SRI. The performance of the benchmark records higher losses during the crisis from 2007 until the end of 2011. The course of the equity index decreased at a third of the output value. It is remarkable that not only the capital loss is higher but also longer, until it starts to recover at the end of 2011.

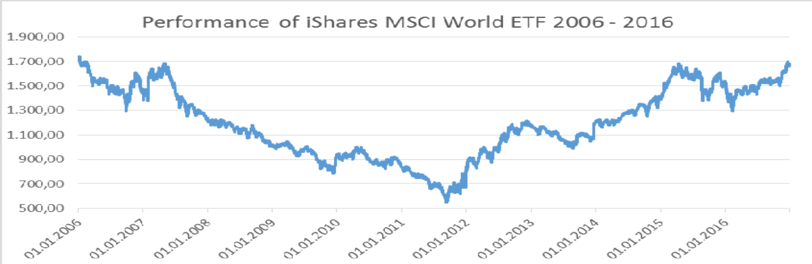

Fig. no. 3: NAV per share of iShares MSCI World ETF 2006 – 2016

Nevertheless, even the benchmark shows an upward trend in the last five years. The development of the equity price is as consistent as the sustainable investments, but gains higher increases in connection with a higher price volatility, which is stated in table no. 3.

Table no. 3: iShares MSCI World ETF performance between 2012 and 2016

Period under review		Delta
01.01.12	31.12.12	40,77%
01.01.12	31.12.13	43,21%
01.01.12	31.12.14	67,43%
01.01.12	31.12.15	81,60%
01.01.12	31.12.16	97,53%

The volatility of the benchmark compared to the sustainable assets becomes apparent in a ten-year comparison in table no. 4. The table shows the NAV per share at the beginning and the end of a year.

Table no. 4: Delta of iShares MSCI World ETF and SRI

Period under review		iShares MSCI World ETF			SRI		
		First NAV per share	Last NAV per share	Delta	First NAV per share	Last NAV per share	Delta
01.01.06	31.12.06	1.738,27	1.440,08	-17,15%	77,42	86,94	12,30%
01.01.07	31.12.07	1.423,81	1.221,51	-14,21%	86,94	88,52	1,82%
01.01.08	31.12.08	1.208,91	1.015,23	-16,02%	88,52	52,24	-40,99%
01.01.09	31.12.09	1.021,68	944,82	-7,52%	52,25	66,17	26,65%
01.01.10	31.12.10	932,02	833,29	-10,59%	66,17	73,45	11,00%
01.01.11	31.12.11	836,50	820,99	-1,85%	73,45	65,63	-10,64%
01.01.12	31.12.12	841,06	1.183,95	40,77%	65,63	72,47	10,42%
01.01.13	31.12.13	1.177,25	1.204,46	2,31%	72,47	84,82	17,04%
01.01.14	31.12.14	1.216,20	1.408,18	15,78%	84,82	96,64	13,93%
01.01.15	31.12.15	1.419,65	1.527,32	7,58%	96,64	104,98	8,63%
01.01.16	31.12.16	1.525,78	1.661,34	8,89%	104,98	108,21	3,08%

Conclusion

The research includes a large period of ten years in order to investigate the stock price development of SRI and non-SRIs in which the last five years' interval is focus.

The chart analysis states a consistent upward trend of the SRIs in the last five years. The last five years' interval, in comparison to the previous period, shows less volatility in connection with moderate market returns. The financial crises had a dominating influence on the stock prices of the SRI and caused a continuous downside trend over two years. The course started to recover faster than the benchmark. After a short period of small loss, this recovery is the start of the aforementioned upward trend that still persists. The losses affected by the crises were already equalized at the beginning of 2015.

The authors investigated the same period for the iShares MSCI World in comparison to the SRI. Firstly, the non-SRI also show an uptrend in the last five years. In fact, the trend is not as consistent as the development of the SRI, but the market returns are apparently higher. The volatility of non-SRI is remarkably high as the stock price is more susceptible to other variables like political events or fluctuations in prices of other assets. The financial crisis had a stronger impact on the stock prices. The graph illustrates a slump in prices from 2007 until 2011, up to 60 percent, and the period of the downside trend which also lasted substantially longer.

The authors could not prove an outperformance of the SRI in comparison to the non-ethical fund by the research in the last period of five years, but the analysis shows that sustainable assets are not as susceptible to crisis or other influences as are non-sustainable investments. Therefore, an investor gains less profit from sustainable investments but during a downwards trend the risk of a loss is not that high. Furthermore, through literature and data review, the authors noticed there is no consensus of what is meant by an ethical fund. No consistent description is released. This hinders the classification of SRI, which could be avoided by the attribute, "ecofriendly", in the Bloomberg description.

Broader research by the authors will focus on the MSCI ESG Index substitutional for all SRI. This index replaces the largest sample of SRI worldwide. Most of the released publications focus on SRI in special countries or branches in order to prove an outperformance of ethical investments. Although the funds will be launched in a special country or area, most of the funds invest in sustainable assets using their screening or best in class approach worldwide. In further research the authors will focus on the effect of the high positive correlation between MSCI ESG Index and the iShares MSCI World ETF.

References

Alam, N., 2013. *Ethical Investment and Consumers in Cultural History*, [online] Available at: <https://mpra.ub.uni-muenchen.de/47216/> [Accessed 10 February 2017].

Brzeszcynski, J. et al, 2016. *Socially Responsible Investment and Market Performance: The Case of Energy and Resource Firms*. [pdf] Available at: <http://www.eprg.group.cam.ac.uk/wp-content/uploads/2016/02/1605-PDF.pdf> [Accessed 18 February 2017].

Bengtsson, N., Peterson, K., 2008. *Ethical funds: a lot of bark but not enough bite? – A comparison and investigation of Swedish ethical funds*, [online] Available at: <https://gupea.ub.gu.se/handle/2077/19207> [Accessed 10 February 2017].

EIRIS Foundation and Ethical Investment Research Services, 2008. *Green and ethical funds*, [online] Available at: <http://www.eiris.org/advisers/ethical-funds/> [Accessed 18 February 2017].

European Sustainable Investment Forum (EUROSIF), 2016. *European SRI Study*. [pdf] Available at: <http://www.eurosif.org/wp-content/uploads/2016/11/SRI-study-2016-HR.pdf> [Accessed 18 February 2017].

Eyraud, L., Wane, A., Zhang, C. and Clements, B., 2011. *Who's Going Green and Why? Trends and Determinants of Green Investment.* IMF Working Paper. [pdf] Available at: <https://www.imf.org/external/pubs/ft/wp/2011/wp11296.pdf> [Accessed 16 February 2017].

Forum Nachhaltige Geldanlagen e.V., 2016. *Marktbericht Nachhaltige Geldanlagen 2016*. [pdf] Forum Nachhaltige Geldanlagen e.V.. Available at: <http://www.forum-ng.org/images/stories/Presse/Marktbericht_2016/FNG_Marktbericht2016_online.pdf> [Accessed 10 February 2017].

Hoffmann, J., Scherhorn, G. and Busch, T., 2004. *Darmstädter Definition Nachhaltiger Geldanlagen*. Wuppertal: Kelkheim.

Lundberg, L., Novak, J. and Vikman, M., 2009. *Ethical vs. Non-Ethical – Is There a Difference? Analyzing Performance of Ethical and Non-Ethical Investment Funds*, [online] Available at: <http://ies.fsv.cuni.cz> [Accessed 18 February 2017].

MSCI Inc., 2017. MSCI World ESG Index (USD). [online] Available at: <https://www.msci.com/documents/10199/db88cb95-3bf3-424c-b776-bfdcca67d460> [Accessed 26 February 2017].

Rathner, Sebastian, 2013. The Relative Performance of Socially Responsible Investment Funds. New Evidence from Austria. [online] Available at: <https://www.uni-salzburg.at/fileadmin/oracle_file_imports/2133616.PDF> [Accessed 18 February 2017].

Schäfer, H. (2005). International Corporate Social Responsibility Rating Systems – Conceptual Outline and Empirical Results. *Journal of Corporate Citizenship*, 20/2005, pp.107-120.

Schäfer, H., Bauer, F. and Bracht, F., 2015. „BiC in Sustainability? Die Transparenz von Best in Class-Nachhaltigkeitsfonds in Deutschland. [online] Available at: <http://dx.doi.org/10.18419/opus-5661> [Accessed 26 February 2017].

World Economic Forum (WEF), 2011. Accelerating the Transition towards Sustainable Investing – Strategic Options for Investors, Corporations and other Key Stakeholders. Available at: <https://papers.ssrn.com/sol3/papers2.cfm?abstract_id=1891834> [Accessed 10 February 2017].

Appendix

Appendix A: Sample funds

ISIN	Security name
LU0061928585	Ökovision Classic
LU0121747215	Sarasin Multi Label
AT0000675657	Kepler Ethik Aktien Fonds
IE0005895655	Green Effects NAI
LU0234759529	F&C Responsible Global Equity
AT0000A01GL7	ERSTE Responsible Stock Global
AT0000677901	Raiffeisen Ethik Aktien
LU0161535835	Swisscanto Portfolio green
LU0113400591	Candriam Equities L- Sustainable
DE0005326532	KCD Union Aktien Nachhaltig
LU0152554803	Liga Pax Cattolico Union
DE0009847343	Terrassisi Aktien I AMI
LI0017502381	Acatis Fair Value Aktien
LU0254565053	Prima-Global Challenges
LU0029375739	DNB-Global SRI
AT0000993043	Superior 4 - Ethik Aktien
LU0188782162	Multipartner SICAV RobecoSam
AT0000701156	3 Banken Nachhaltigkeits-fonds
LU0229773345	Sarasin Ökosar Equity
LU0158827195	Allianz Global Sustainability
LU0041441808	SEB Green Fund
DE0008470477	Invesco Umwelt und Nachhaltigkeit
LU0117185150	Meridio Green Balance