

IO-Life Cycle Assessments of Socially Responsible Investment SRI funds

26th LCA Discussion Forum

Dr. Thomas Köllner

thomas.koellner@env.ethz.ch



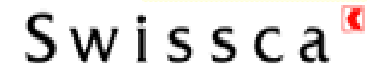
Basics about SRI funds

- Financial product which is designed to meet environmental, ethical, and social criteria
- Investment funds are a portfolio of stocks, bonds and cash -> risk reduction
 - Typically 40-120 stocks and/or bonds selected according to sustainability criteria
 - Fund manager aims to outperform the market

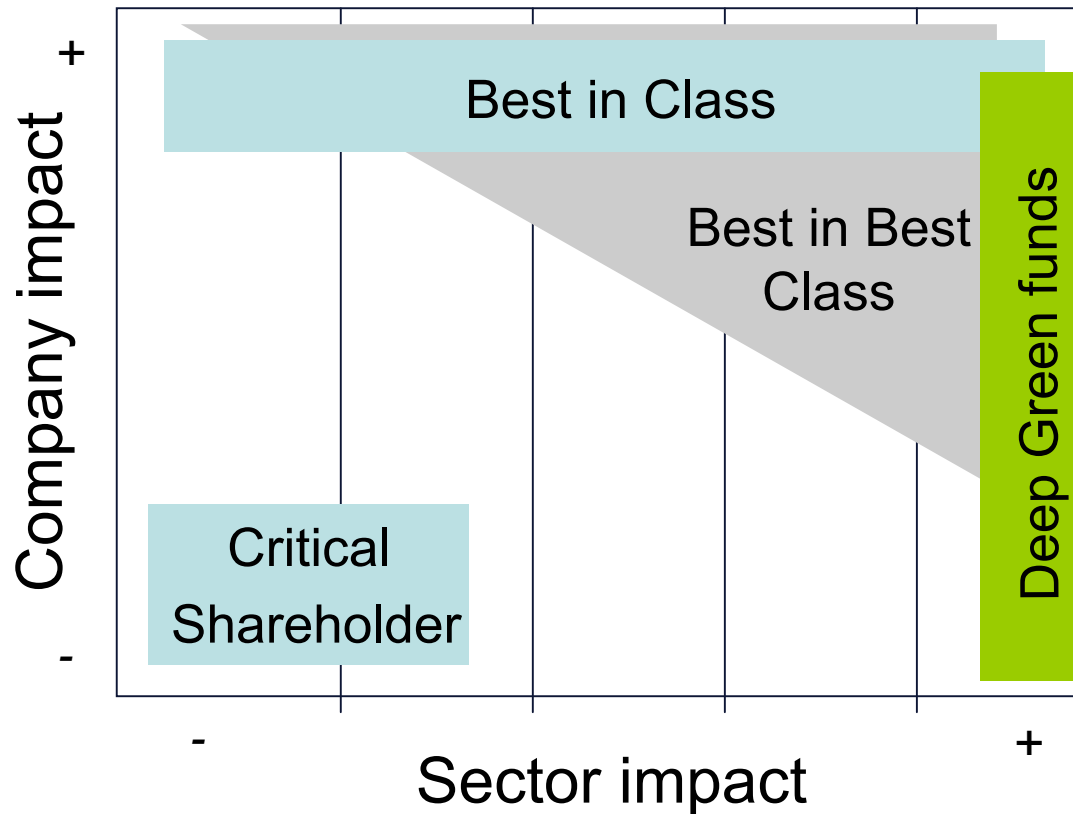
Variety of SRI funds

(only funds for retail, 2003)

- Europe: 280 SRI funds
- Japan: 15 SRI funds
- USA: >104 SRI funds

The logo for ÖKOVISION, featuring the word in a bold, sans-serif font with a vertical line to the left.The logo for delta lloyd gruppe, with 'delta lloyd' in a bold font and 'gruppe' in a smaller font below it.The logo for GreenEffects, with 'Green' in green and 'Effects' in black.The logo for DEXIA, with the word in white on a dark blue rectangular background.The text 'Asset Management Luxembourg' in a serif font.The logo for SARASIN, featuring a tree icon above the word in a serif font.The logo for Swissca, with the word in a bold, sans-serif font and a small red square icon to the right.The text 'FONDS FÜR ORDEN UND ÖKUMENE' in a small, sans-serif font, positioned above a horizontal bar.The logo for PICTET, featuring a red lion rampant icon to the left of the word 'PICTET' and the year '1805' below it.The logo for KEPLER FONDS, with 'KEPLER' in a bold font and 'FONDS' in a smaller font to the right, and the tagline 'Die kalkulierbare Zukunft' below.

Types of eco-ethical funds



Basic motivation for study

- Large overlap of portfolios of SRI-funds and regular equity funds
- Similar sector allocation of both types of funds
 - Portfolio manager follow the benchmark (MSCI, SP500)
- Both effects -> no differentiation of the two fund types' environmental impact (null hypothesis)

Goal

- Assessment of the environmental impact of a 1000\$ investment into an equity fund.
- Comparison of environmental impacts of SRI-funds with regular funds
 - For for each type 13 funds with benchmark MSCI
 - For for each type 15 funds with SP500

Method

- Portfolio analysis to track decisions of portfolio manager with respect to financial and sustainability goals
 - Portfolio composition and sector allocation
 - IO-LCA with CEDA (Sangwong Suh, Univ. Leiden)
 - Environmental ratings of 400 companies from SIRI
- Statistical analysis to compare regular and SRI funds

Sector and industry classification (GICS)

Sector	Industry
10 Energy	101010 Energy Equipment & Services
15 Materials	101020 Oil & Gas
20 Industrials	151010 Chemicals
25 Consumer Discretionary	151020 Construction Materials
30 Consumer Staples	151030 Containers & Packaging
35 Health Care	151040 Metals & Mining
40 Financials	151050 Paper & Forest Products
45 Information Technology	
50 Telecommunication Services	
55 Utilities	

MIET/CEDA for Industries

**11 to 20 EI points
per 1 Mill \$ goods purchased:**

- Insurance
- Commercial Banks
- Consumer Finance
- Communications Equipment
- Wireless Telecommunication Services
- Internet Software & Services
- IT Services
- Software
- Real Estate

**80 to 2000 EI points
per 1 Mill \$:**

- Building Products
- Air Freight & Logistics
- Airlines
- Water Utilities
- Electric Utilities
- Chemicals
- Energy Equipment & Services
- Metals & Mining
- Gas Utilities
- Oil & Gas

Env. impact of an investment

Investment Market

Net asset
value of fund
[\$]

Investment [\$]

Company *i*

Market cap [\$]

Ownership [%]

*Responsibility for
x % of activity*

Consumer Market

Final demand
[\$]

Sales [\$]

Production
Economic value
added [\$]

COGS [\$]

Supply chain
Producer price [\$]

Environment

Resources,
emissions [t]

Environm.
impact
[EI points]

Regular funds

Fund name	Count of stocks	Total assets in mill \$
DEXIA INDEX WORLD	588	97
POSTSOLEIL EUROPE	57	16
ALBATROS AKTIEN INTL OP	66	4
UNIGLOBAL -NET-	214	935
KOELNER-AKTIENFONDS-UNION+	69	14
DWS KONSUMWERTE	60	32
ML OFFSHORE ST-GLOBAL FUND	138	96
ACTIVEST LUX GLOBALGROWTH	113	104
PICTET F-GLOBAL EQT SEL-P	51	86
WM FUND GLOBAL GROWTH-B	30	7
ACTIVEST LUX MF BALANCD EQ-N	106	118
INVESCO GT GLOBAL VALUE-A	77	33
UBS ACCESS SICAV-GL EQUITY-B	301	535

SRI funds

Fund name	Count of stocks	Total assets in mill \$
SALZBURG-KLASSIK OEKO TRND-A	117	5
DEXIA SUSTAIN ACCENT SOCIAL	88	71
DEXIA SUSTAIN WORLD LG CAPS	68	51
DEXIA SUSTAINABLE ACCENT EAR	90	10
SWISSCA GREEN INVEST	105	175
RAIFFSN FUTURA GLOBAL STOCK	44	43
DLI GLOBAL QUALITY	97	8
SEB INVEST OEKOLUX	88	45
UBS LUX EQTY-ECO PERFORM-BSfr	119	216
ING (L) INV-SUSTAIN GRWTH-PC	81	40
SAM SUSTAINABLE WATER FUND	39	72
ABN AMRO SOCIAL RESPONS EQ-A	68	6
HENDERSON HORIZ-GL SUST I-A2	80	3

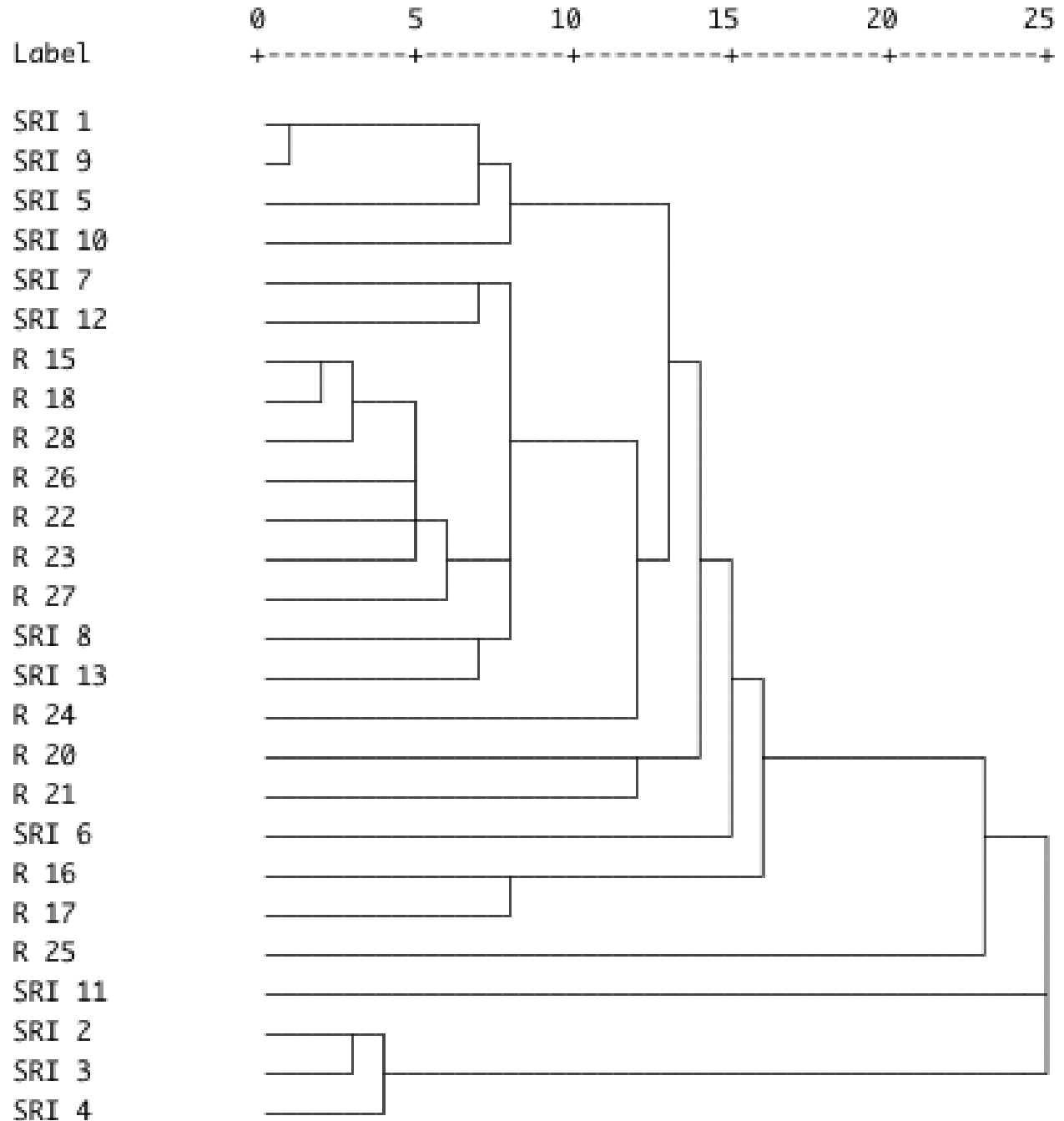
Results A

Portfolio composition and sector allocation of investment funds

Sector allocation

GICS Sector	Weight in %			E _z	Number of stocks		Env. Ratings
	Benchm ark MSCI ¹⁾	Regular funds	SRI funds		Regular funds	SRI funds	% of stocks
Energy	8.2	8.1	5.3	-2.8	101	52	35.9
Materials	5.3	5.2	4.4	-0.8	123	53	50.0
Industrial	10.6	7.1	13.2	6.1	181	143	37.3
Consumer Discretionary	12.4	15.1	10.3	-4.8	312	137	56.8
Consumer Staples	8.8	8.6	8.4	-0.2	168	91	62.2
Health Care	10.2	10.6	9.9	-0.7	150	93	72.0
Financials	24.5	20.4	20.8	0.4	387	199	63.5
Information Technology	11.2	10.3	11.8	1.5	204	154	67.6
Telecommunications	4.7	6.5	6.3	-0.2	97	68	69.1
Utilities	4.1	3.1	4.7	1.6	76	42	57.6
missing		4.9	4.9	0.0	78	53	
Total	100.0	100.0	100.0		1877	1085	

Rescaled Distance Cluster Combine



Results B

Do SRI funds financially perform better than regular funds?

Financial performance

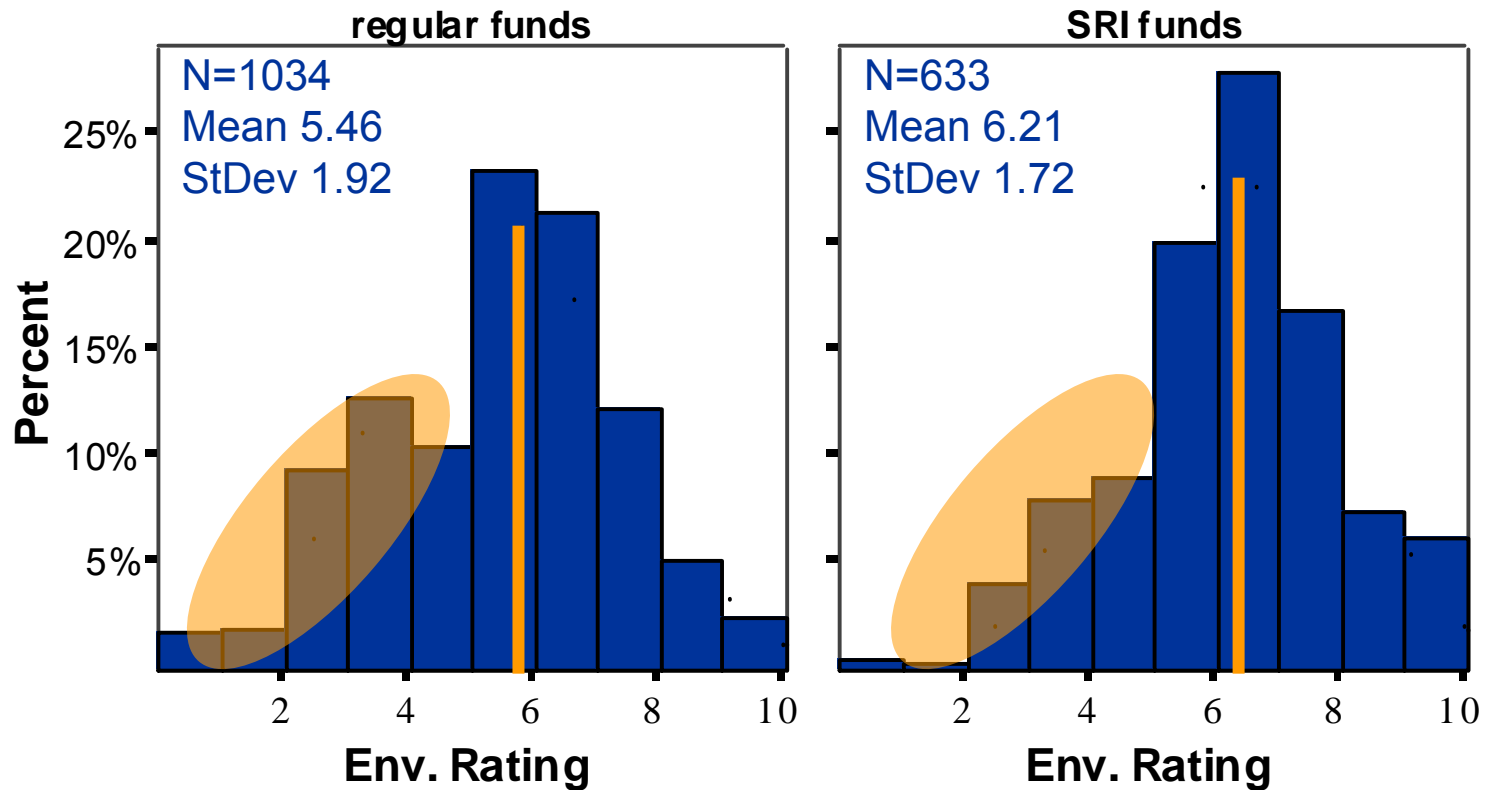
	Regular funds		SRI funds		Sign.
	Mean	Std. Dev	Mean	Std. Dev	
2000 to 2004					
Perform. in %	3.6	7.8	2.2	5.9	
Volatility in %	16.4	2.6	16.4	1.4	
RAP in %	4.7	11.2	2.6	5.8	
Beta	0.9	0.2	1	0.1	
2004					
Perform. in %	11.5	6.2	14.4	5.1	
Volatility in %	11.1	2	11.2	1.9	
RAP in %	10.5	4.8	12.5	3.6	*
Beta	1.1	0.2	1.1	0.2	
Total assets in mill \$	159.8	271.1	57.2	66.5	

* p<0.10, **<0.05

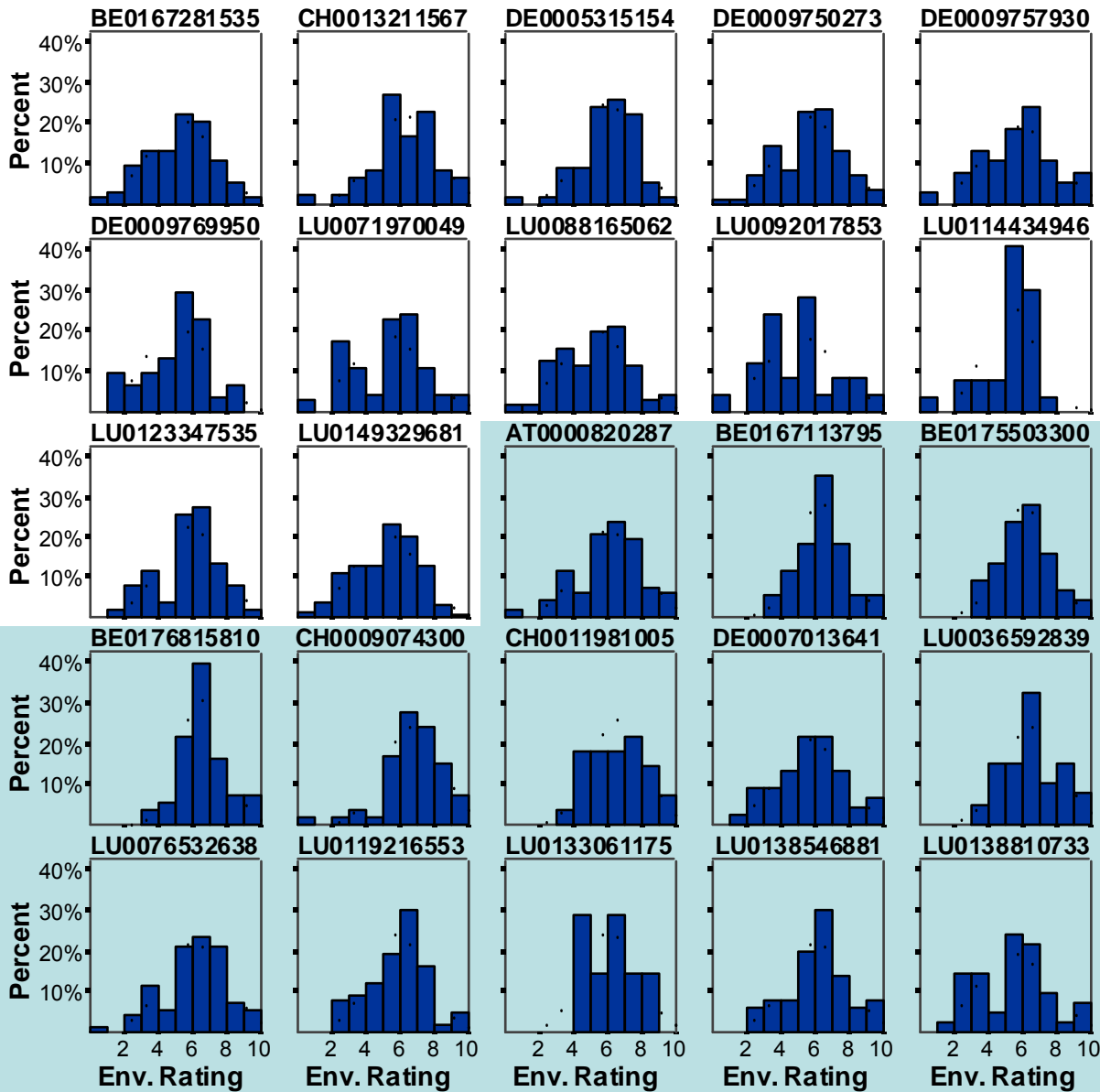
Results C

Do regular funds and SRI funds differ with respect to impact of their portfolio?

Differences of Env. Rating

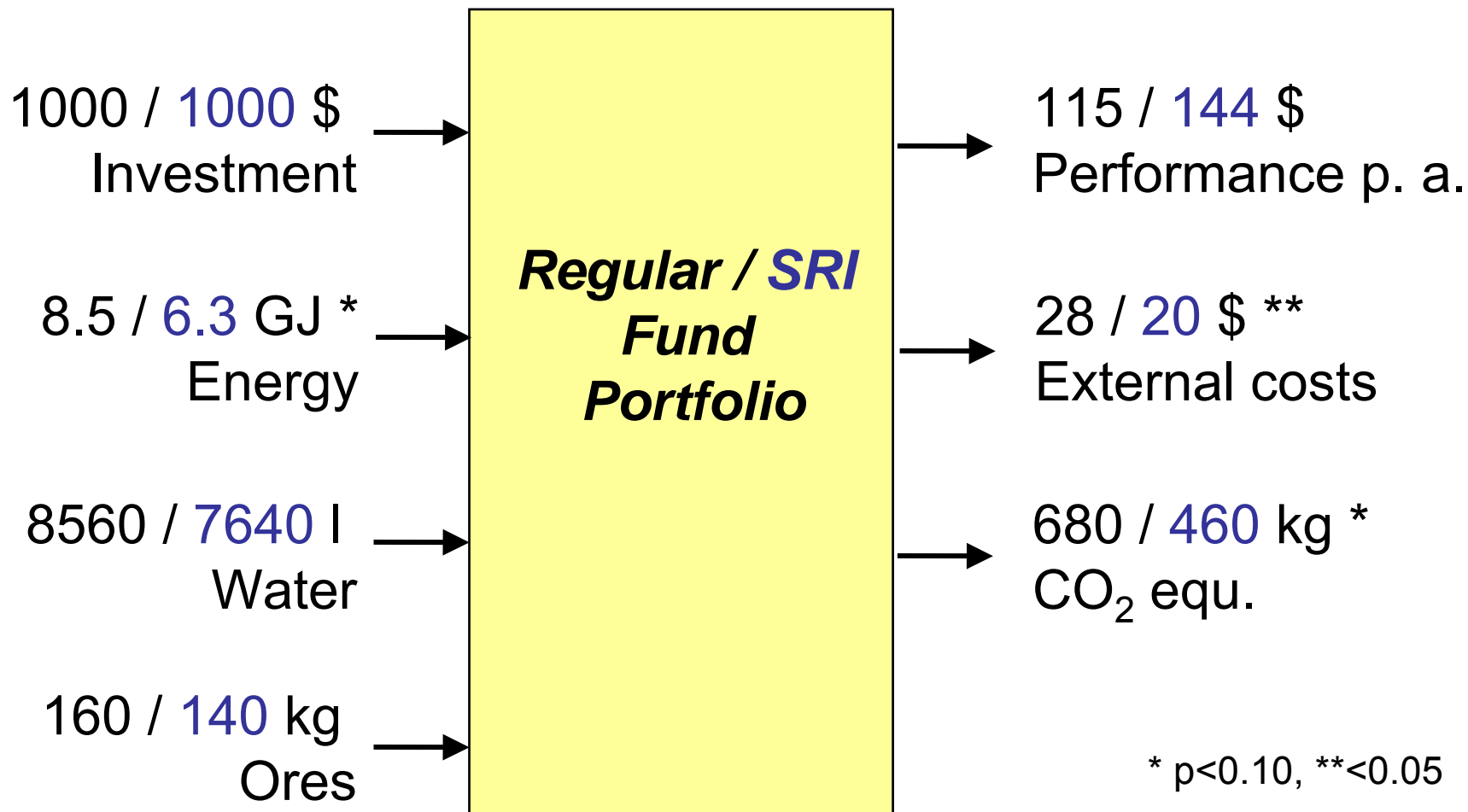


t-test of means
 $p < 0.001^{**}$

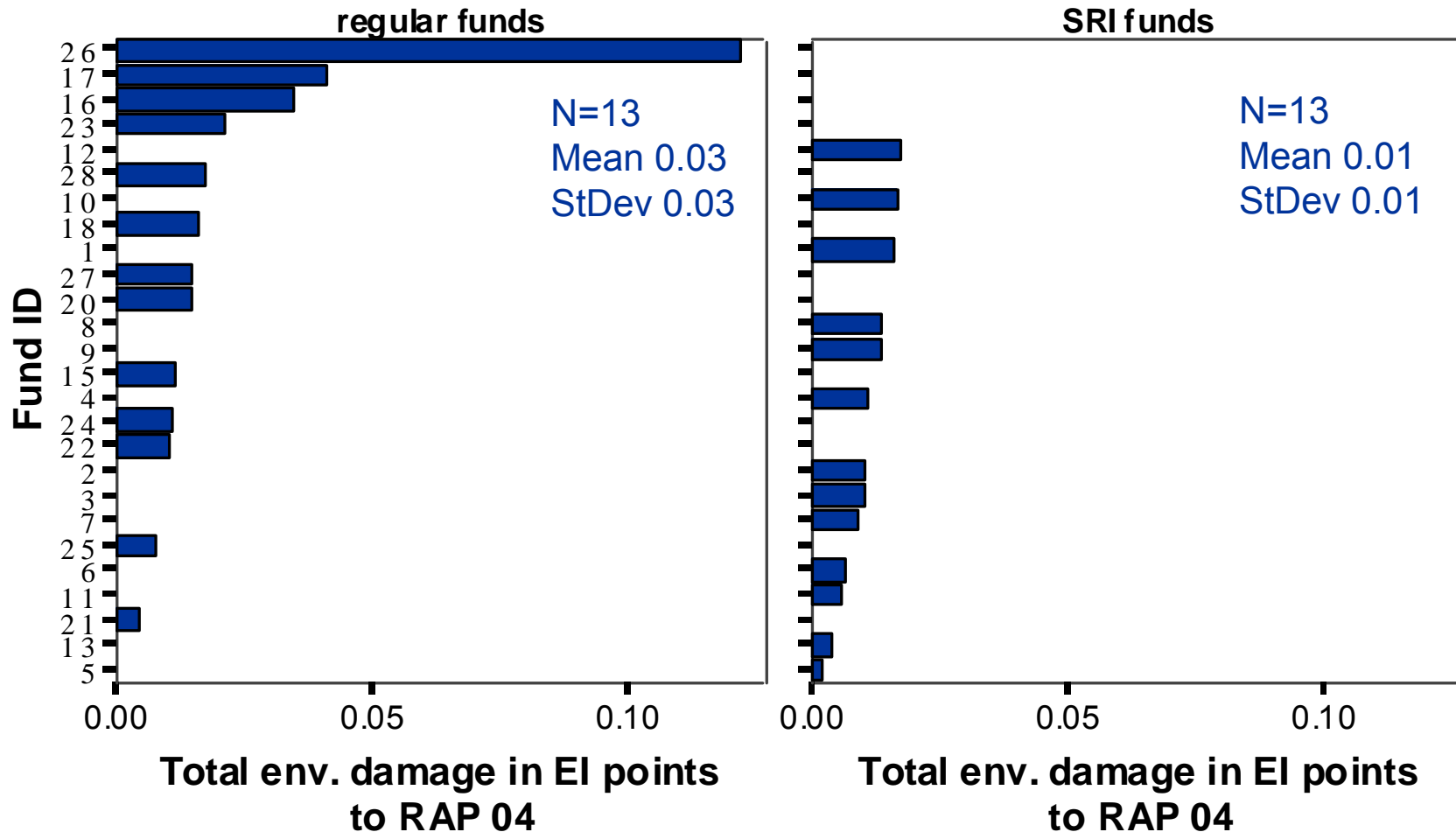


SRI-Funds

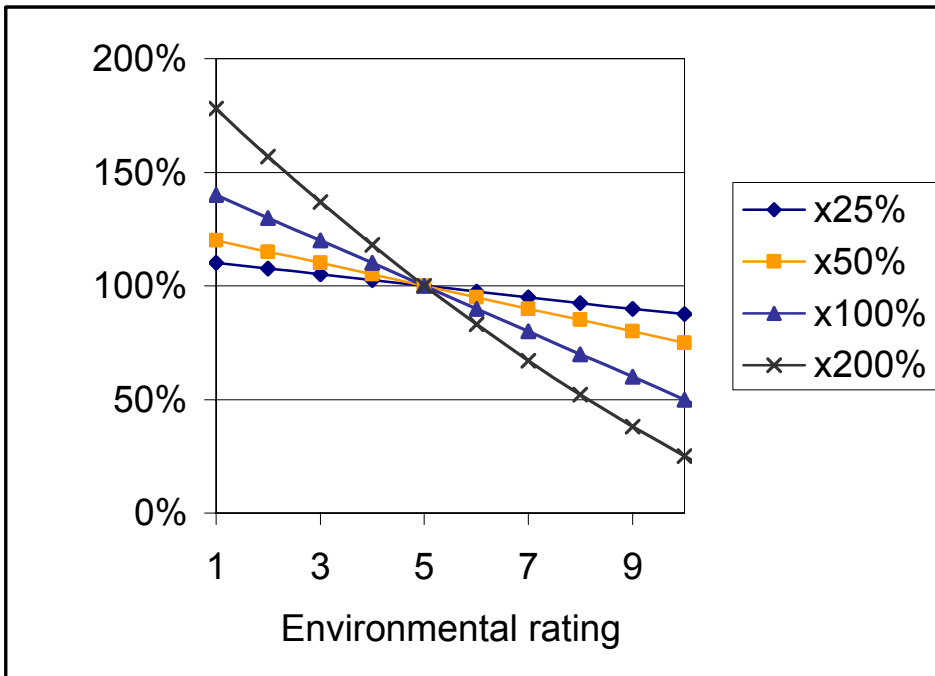
Env. impact of 1000 \$ investment



Ranking of regular and SRI-funds



Sensitivity Analysis



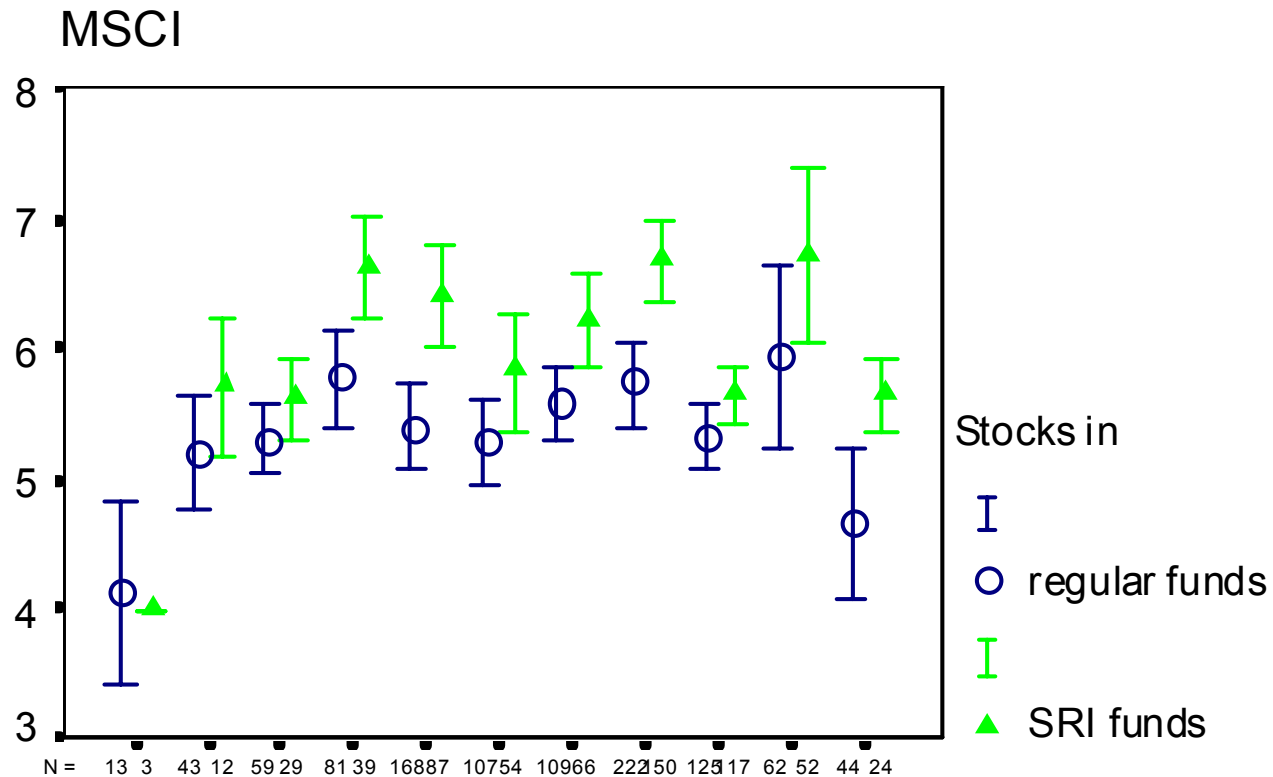
% of total env. damage in EI points	Regular funds		SRI funds		Sig.
	Mean	Std. Dev.	Mean	Std. Dev.	
200%	0.19	0.12	0.12	0.05 *	
100%	0.20	0.13	0.12	0.06 *	
50%	0.20	0.13	0.12	0.06 *	
25%	0.20	0.13	0.13	0.06 *	

* p<0.10

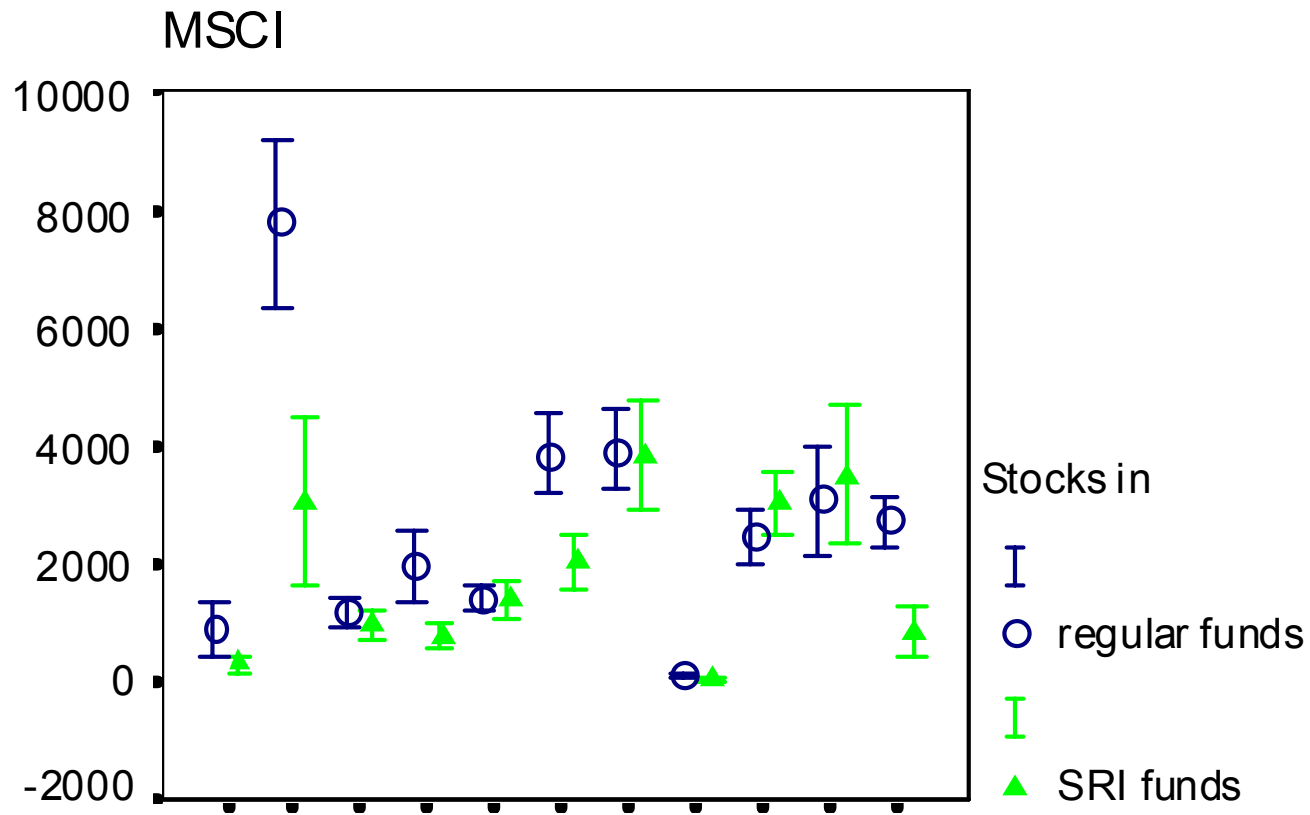
Results D

How differ stocks with respect to membership in regular and SRI-funds?

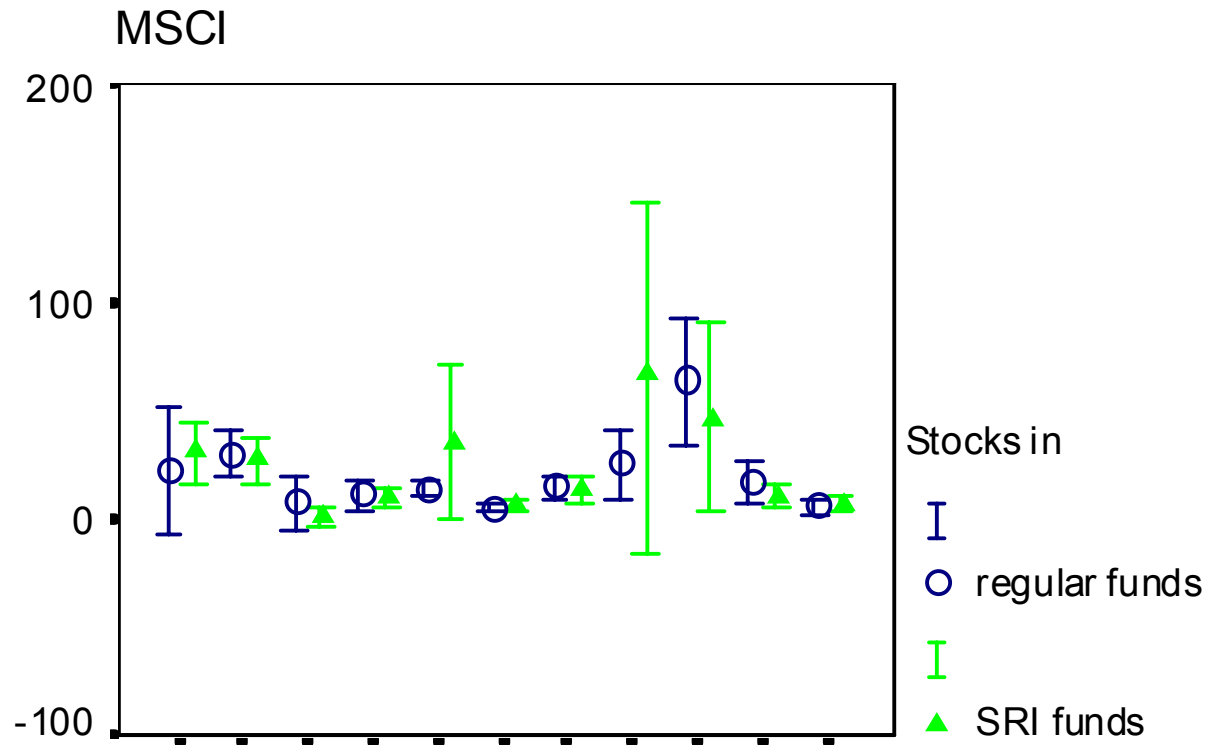
Difference in environmental rating by SRI



Earnings in mill \$



Growth of earnings



Conclusion I

- It is possible to assess env. impact of portfolios
- Differences of mean of environmental ratings between regular and SRI funds are very small
- SRI funds have less environmental impact compared to regular funds, but both need energy and emit CO₂ to produce money!!
- Env. impact is driven by sector allocation
 - Company specific ratings were not important

Conclusion II

- Sector/industries, not only companies must be taken into account in sustainability assessments
- SRI portfolio manager need to optimize sector allocation for financial and sustainability criteria!!
- SRI funds have other positive impacts
 - voting practices with respect to sustainability goals
 - direct communication with companies can trigger improvement

Thanks

- Corinne Moser, Patrick Wirth and Basil Vitins from Care Group for information on fund portfolios
- SiriGroup for data on environmental performance of companies
- Sangwong Suh for CEDA data