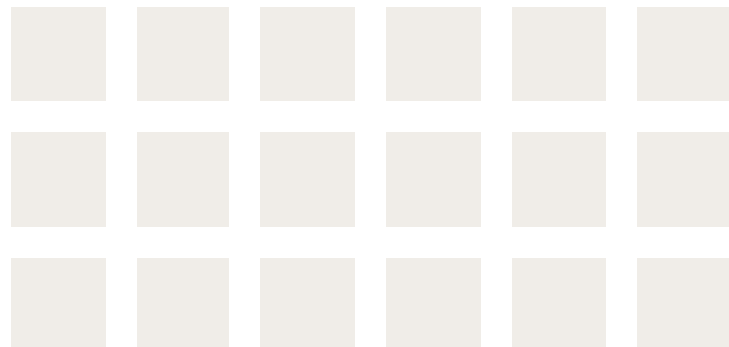


Some considerations about SRI in sovereign bonds



Bastien Drut

Elements of my PhD thesis

- Fixed Income and FX Strategy today
- I defended my PhD thesis in October 2011.
- Title: **Socially Responsible Investment and Portfolio Selection**
- Topics: sovereign bonds in SRI
 - Portfolio selection
 - Efficient frontier, mean-variance optimization

What countries are socially responsible?

SR behaviour of governments proxied by Vigeo rating

Selected 20 developed countries

No empirical work about the explanation of the SR behaviour of a country

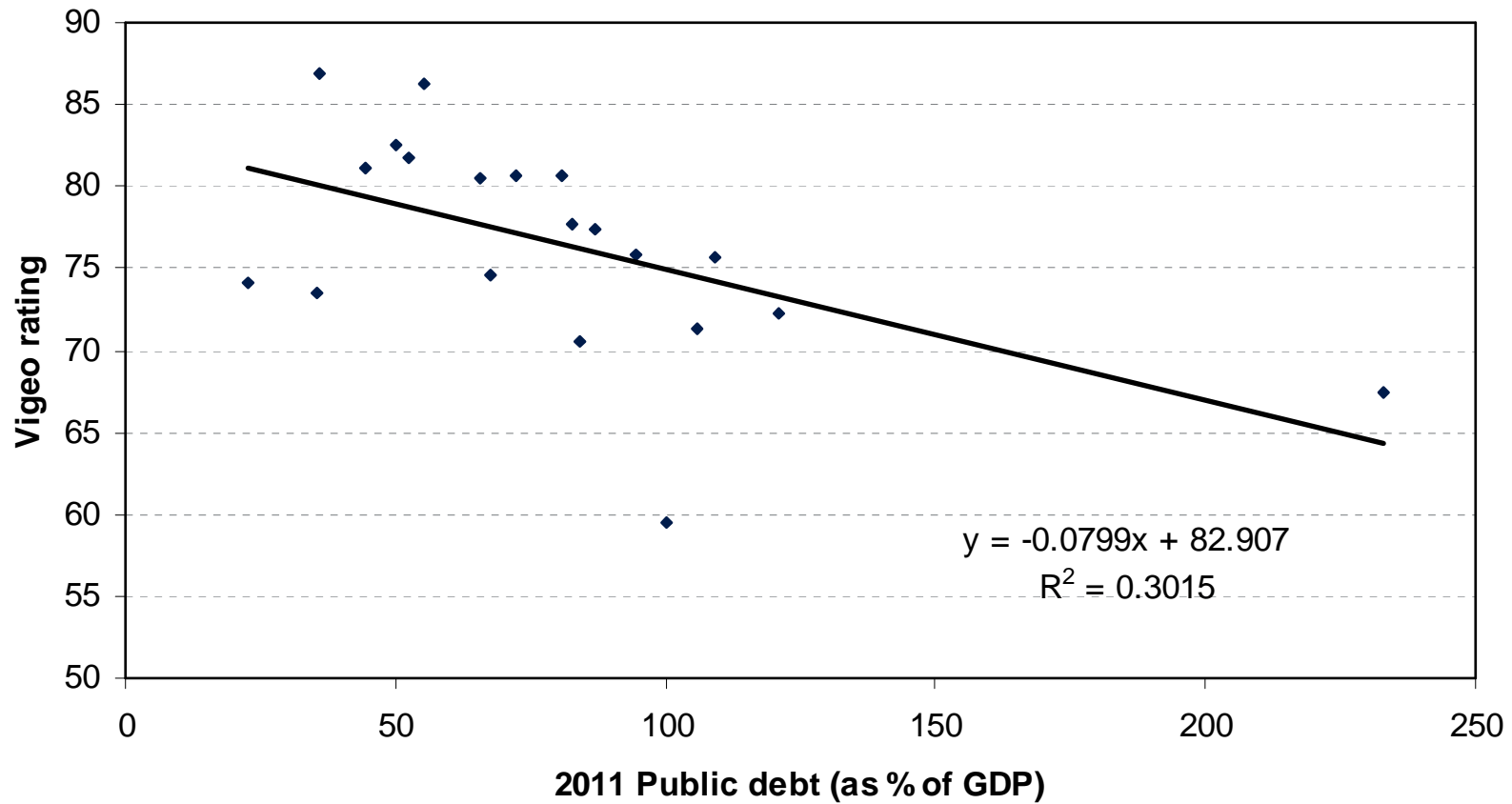
Is there a link between SR ratings and macro variables?

Country	Vigeo SCR
Sweden	86.89
Norway	86.27
Finland	82.51
Switzerland	81.77
Denmark	81.20
Austria	80.71
United Kingdom	80.63
Netherlands	80.56
Germany	77.64
France	77.38
Belgium	75.79
Ireland	75.66
Spain	74.57
Australia	74.11
New Zealand	73.55
Italy	72.33
Portugal	71.27
Canada	70.60
Japan	67.41
United States	59.46

Vigeo ratings vs public debt (as % of GDP)

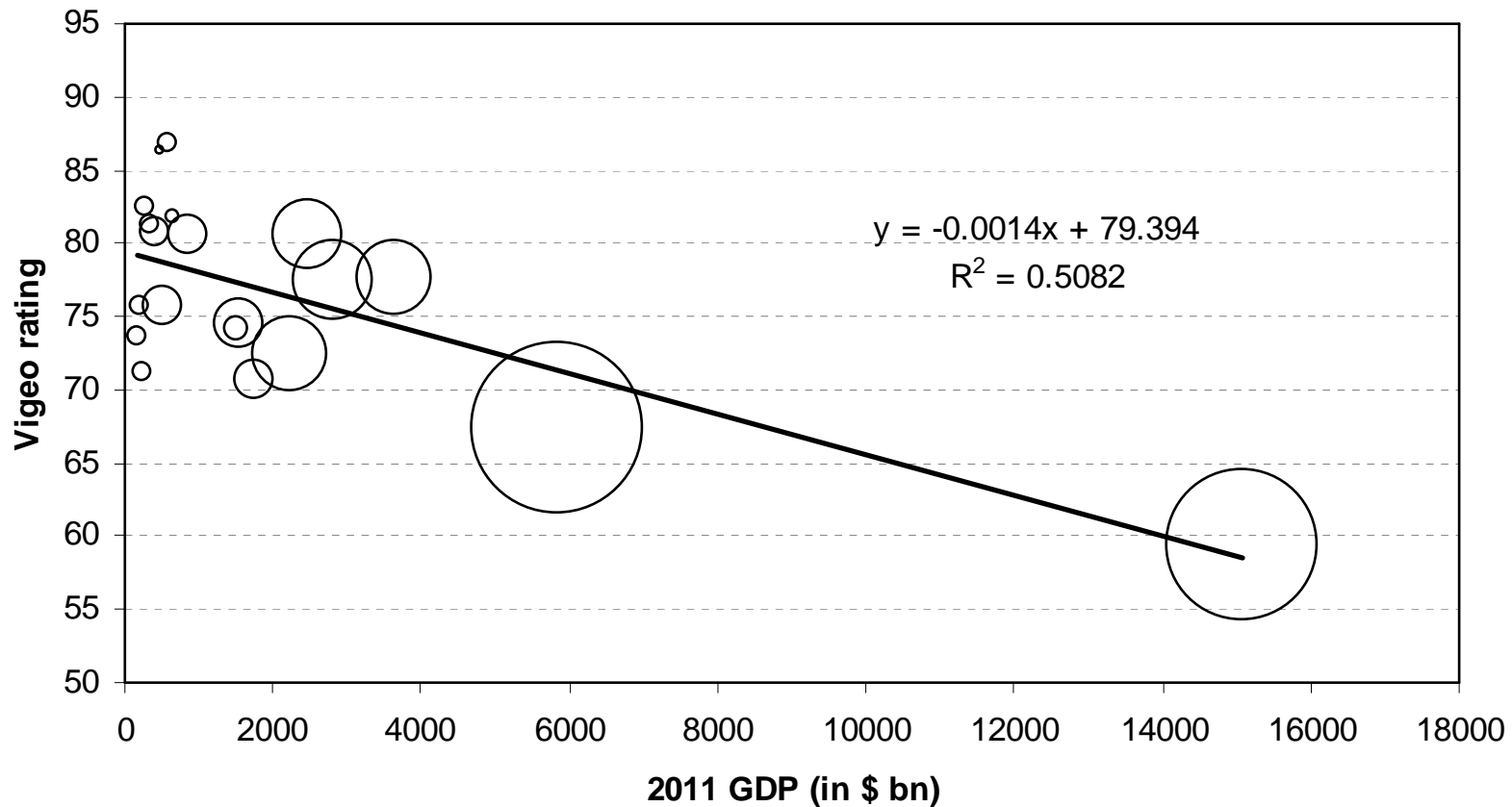
SR behavior of governments proxied by Vigeo rating

2011 Public debt (as % of GDP) vs Vigeo rating



Vigeo ratings vs GDP (in \$ bn)

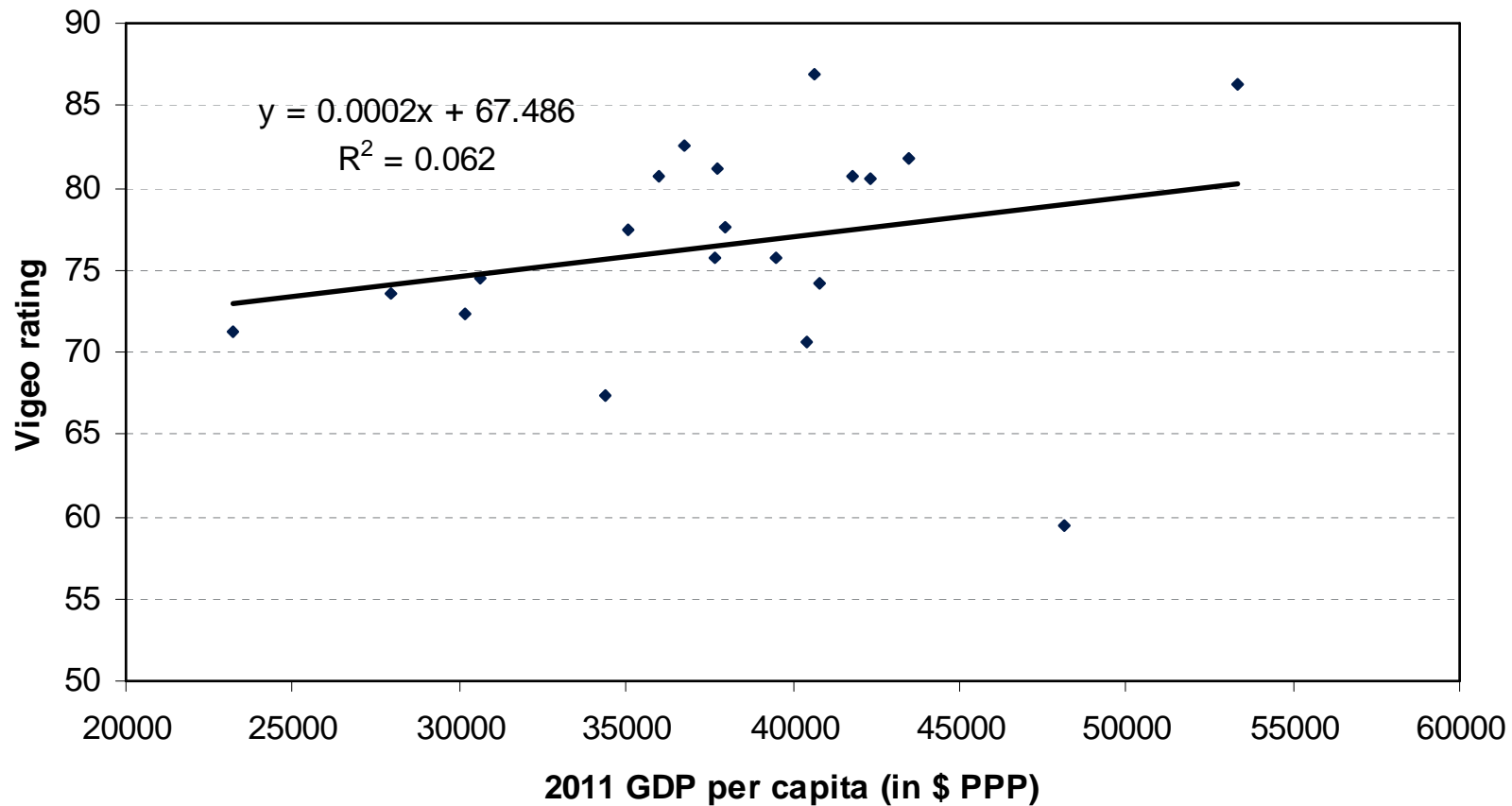
2011 GDP (in \$ bn) vs Vigeo rating



Big countries have bad SR Ratings

Vigeo ratings vs income levels

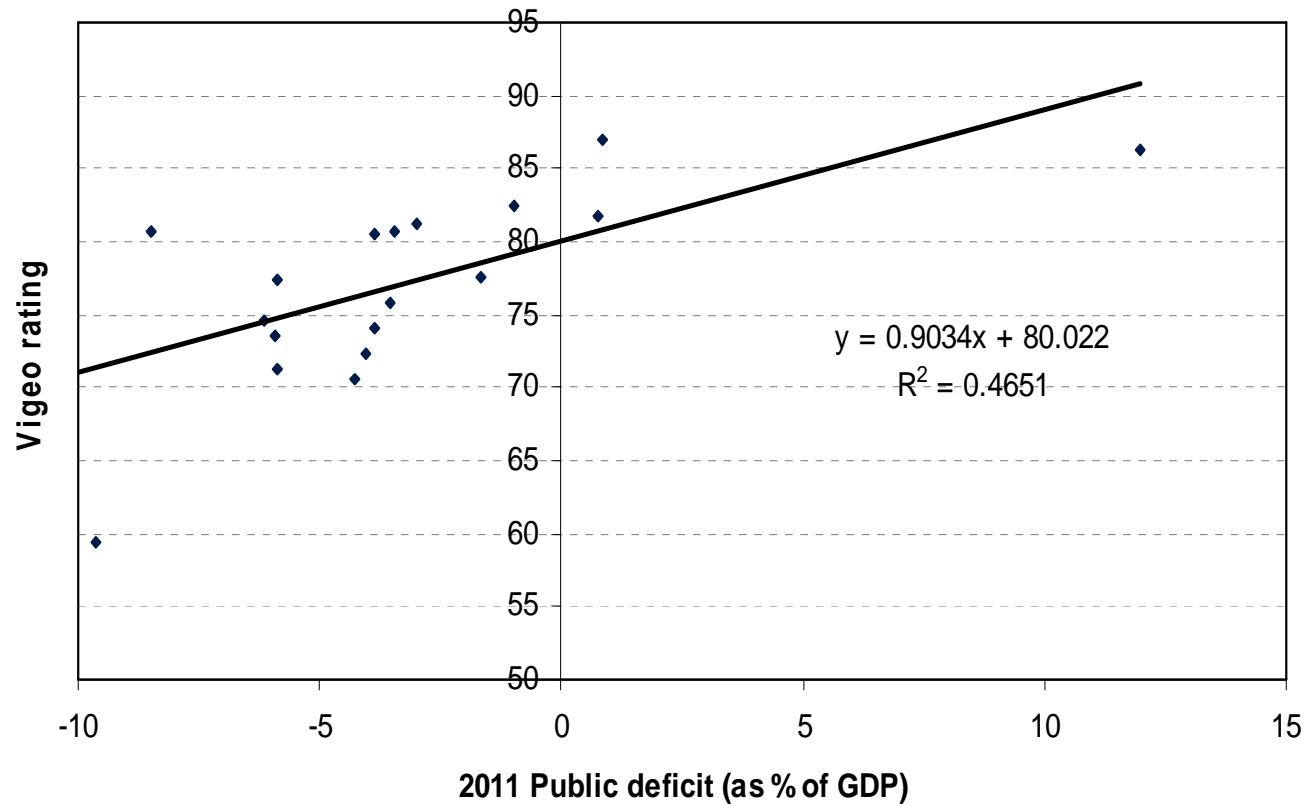
2011 GDP per capita (in \$ PPP) vs Vigeo rating



Inside the developed countries class, the SR rating has nothing to do with wealth

Vigeo ratings vs public deficit

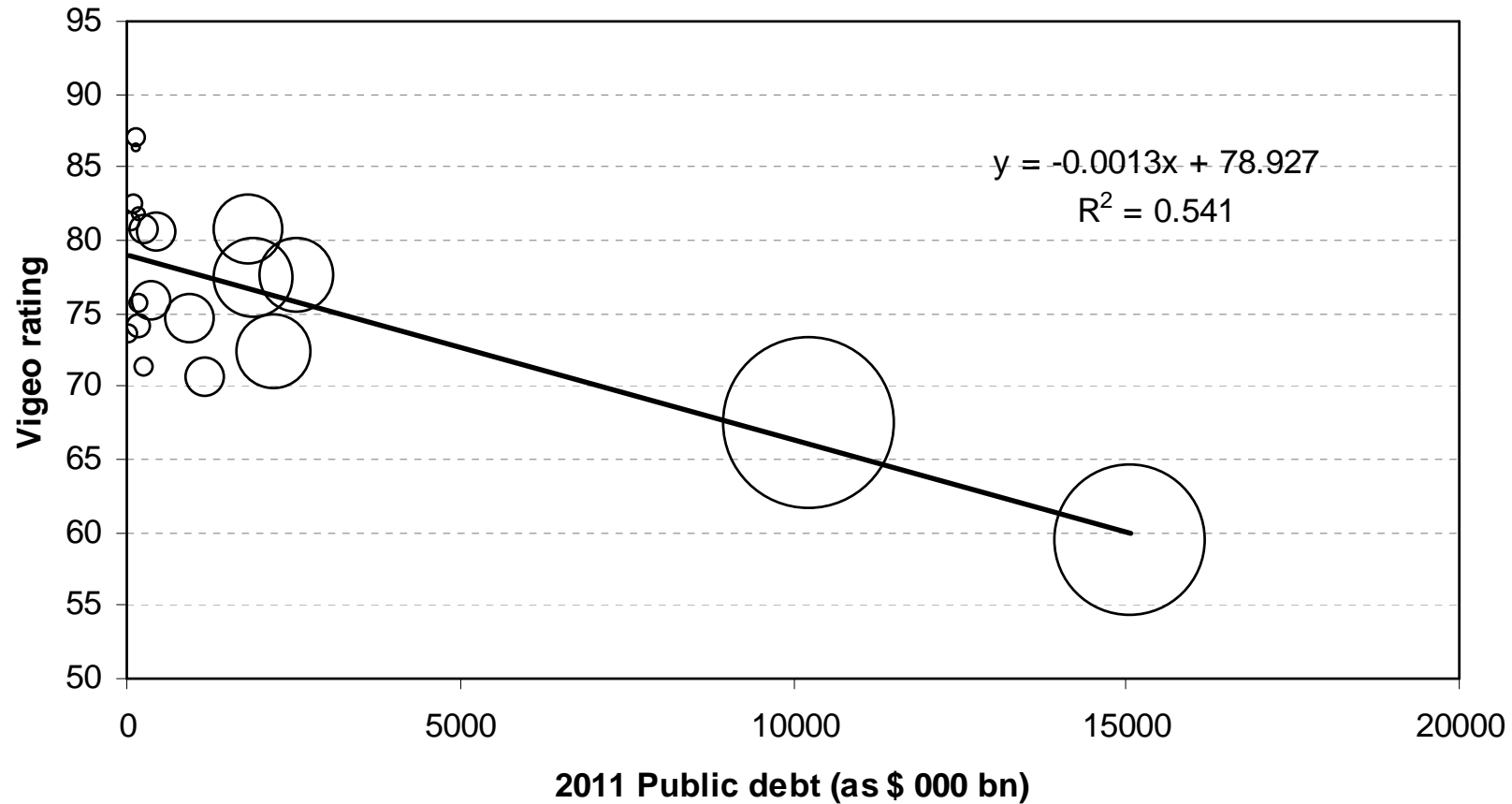
2011 Public deficit (as % of GDP) vs Vigeo rating



The best SR rated have the highest deficit

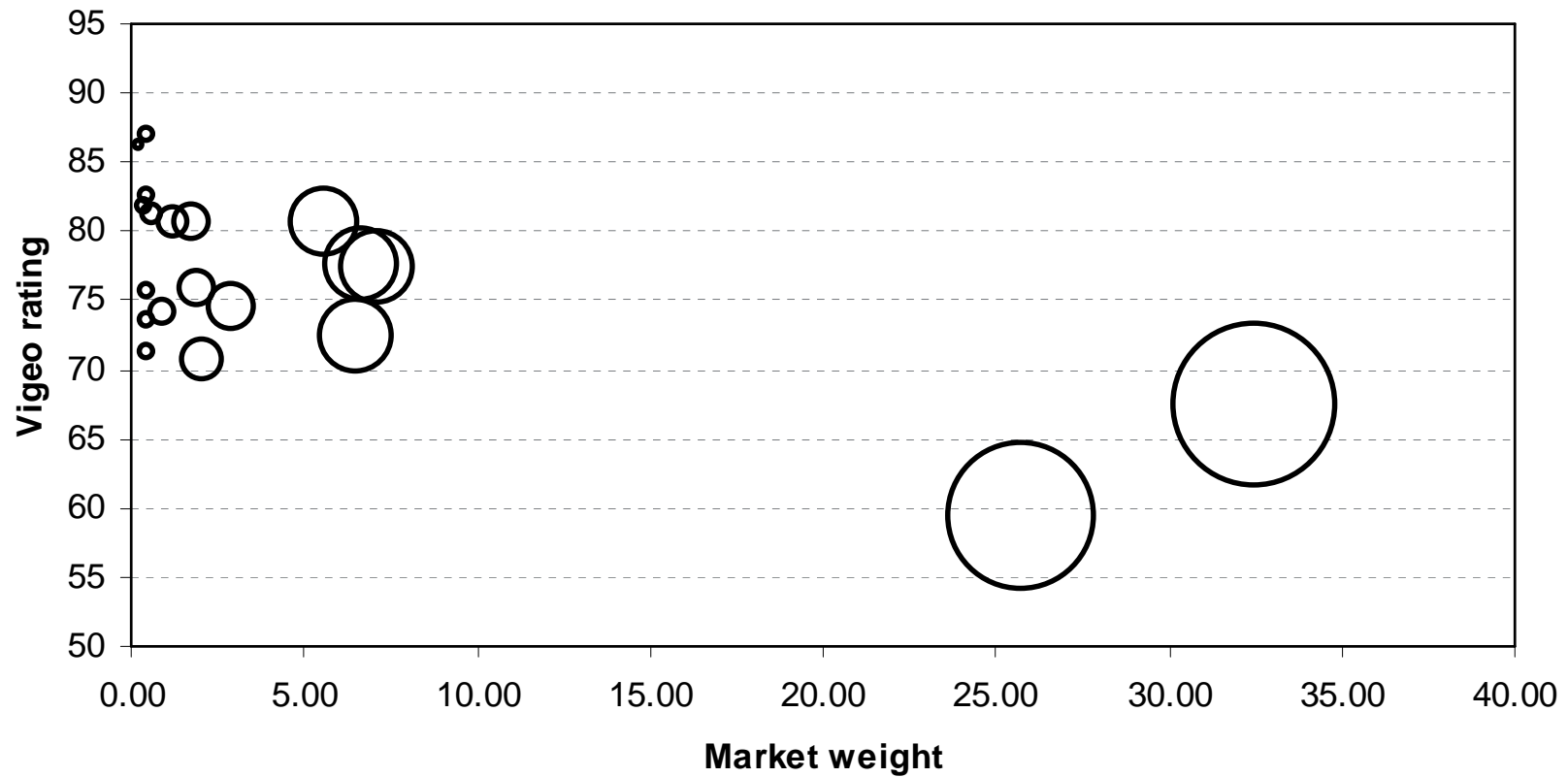
Vigeo ratings vs public debt (in \$ 000 bn)

2011 Public debt (as \$ 000 bn) vs Vigeo rating



Vigeo ratings vs WGBI weights

Weight in the WGBI index vs Vigeo rating



Problem : most SR countries have very low debt levels

Country	Vigeo SCR	Weight in the WGBI index	
Sweden	86.89	0.49	
Norway	86.27	0.21	
Finland	82.51	0.47	
Switzerland	81.77	0.36	
Denmark	81.20	0.64	Average rating 76.52
Austria	80.71	1.25	Index rating 69.16
United Kingdom	80.63	5.57	
Netherlands	80.56	1.76	
Germany	77.64	6.68	
France	77.38	7.10	
Belgium	75.79	1.92	
Ireland	75.66	0.45	
Spain	74.57	2.92	
Australia	74.11	0.91	
New Zealand	73.55	0.49	
Italy	72.33	6.55	
Portugal	71.27	0.48	
Canada	70.60	2.06	
Japan	67.41	32.52	
United States	59.46	25.73	

The best SR rated countries have the best S&P rating

Can SR ratings predict evolution of Credit Ratings?

	S&P rating June 2008	S&P rating Jan 2012		Vigeo rating
Sweden	AAA	AAA	0	86.89
Norway	AAA	AAA	0	86.27
Finland	AAA	AAA	0	82.51
Switzerland	AAA	AAA	0	81.77
Denmark	AAA	AAA	0	81.20
Austria	AAA	AA+	1	80.71
United Kingdom	AAA	AAA	0	80.63
Netherlands	AAA	AAA	0	80.56
Germany	AAA	AAA	0	77.64
France	AAA	AA+	1	77.38
Belgium	AA+	AA	1	75.79
Ireland	AAA	BBB+	7	75.66
Spain	AAA	A	5	74.57
Australia	AAA	AAA	0	74.11
New Zealand	AA	AA	0	73.55
Italy	A+	BBB+	3	72.33
Portugal	AA-	BB	8	71.27
Canada	AAA	AAA	0	70.60
Japan	AA	AA-	1	67.41
United States	AAA	AA+	1	59.46

What are the performances of a SR portfolio in crisis times?

■ Drut (JOBÉ, 2010)

- It is possible to increase sensibly the Vigeo rating of a govies portfolio without harming the diversification power. Pb: the dataset did not include the 2008 crisis (period : 1995-2008)

■ Constitution of portfolios with WGBI indices All Maturities

- Equally weighted portfolio of the 5 best Vigeo rated countries
- Equally weighted portfolio of the 10 best Vigeo rated countries
- Equally weighted portfolio of the 5 worst Vigeo rated countries
- Equally weighted portfolio of the 10 worst Vigeo rated countries

■ Comparaison with WGBI World

■ 5 best Vigeo rated countries:

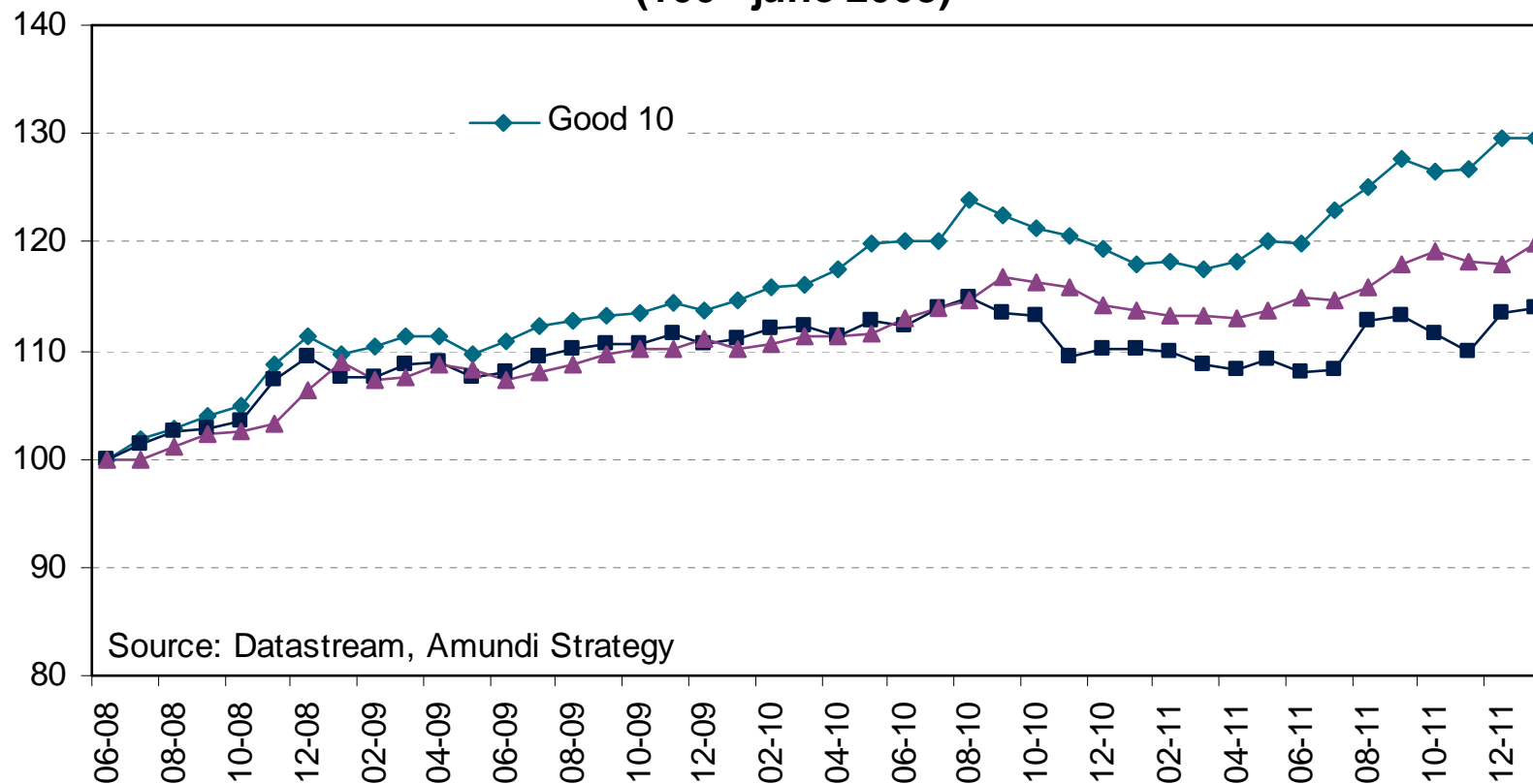
- Sweden, Norway, Finland, Switzerland, Denmark

■ 5 worst Vigeo rated countries:

- Italy, Portugal, Canada, Japan, United States

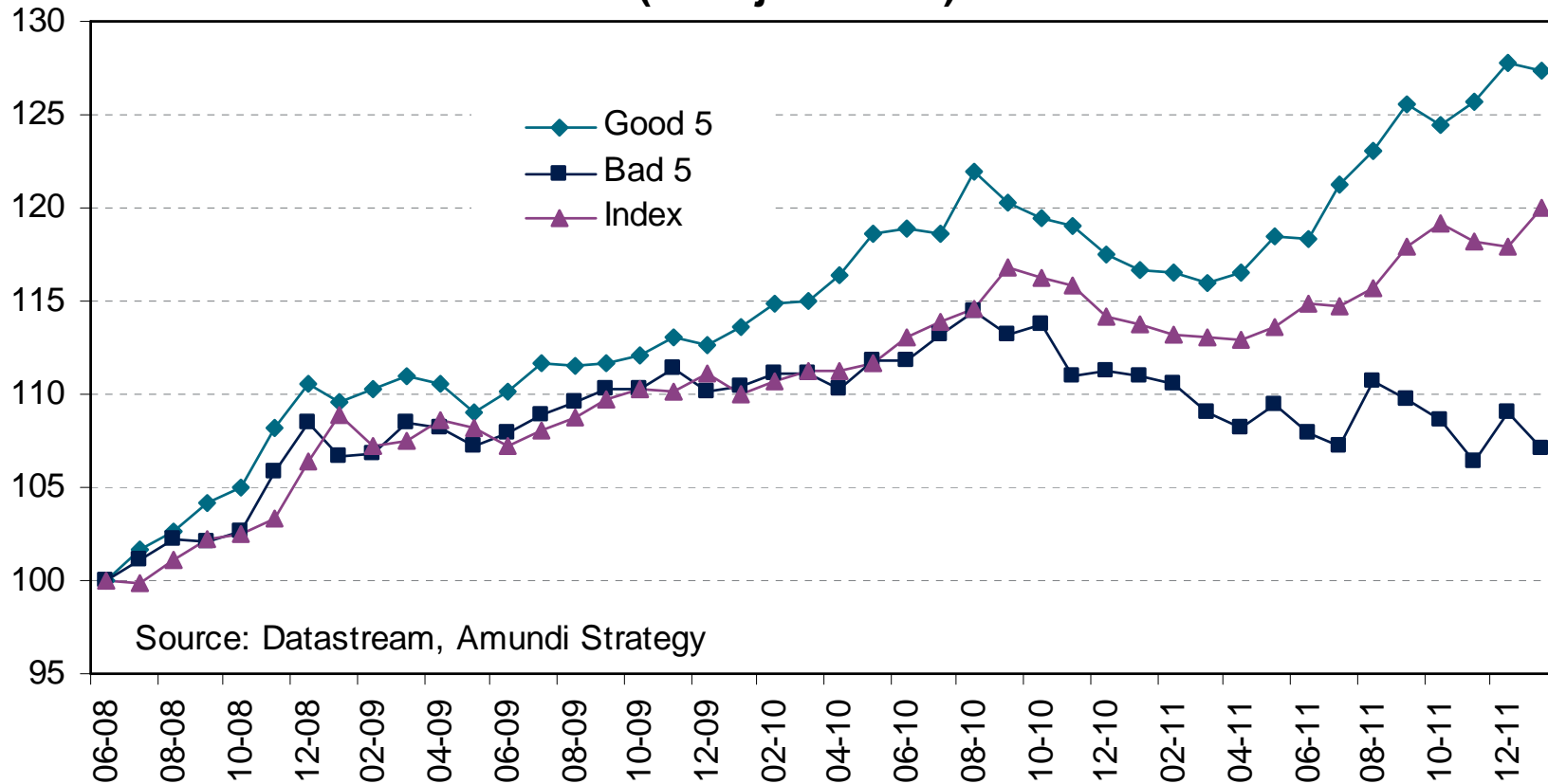
Post-crisis (with hedged indices)

**Total return: 10 best SR rated vs 10 worst SR rated
(100= june 2008)**

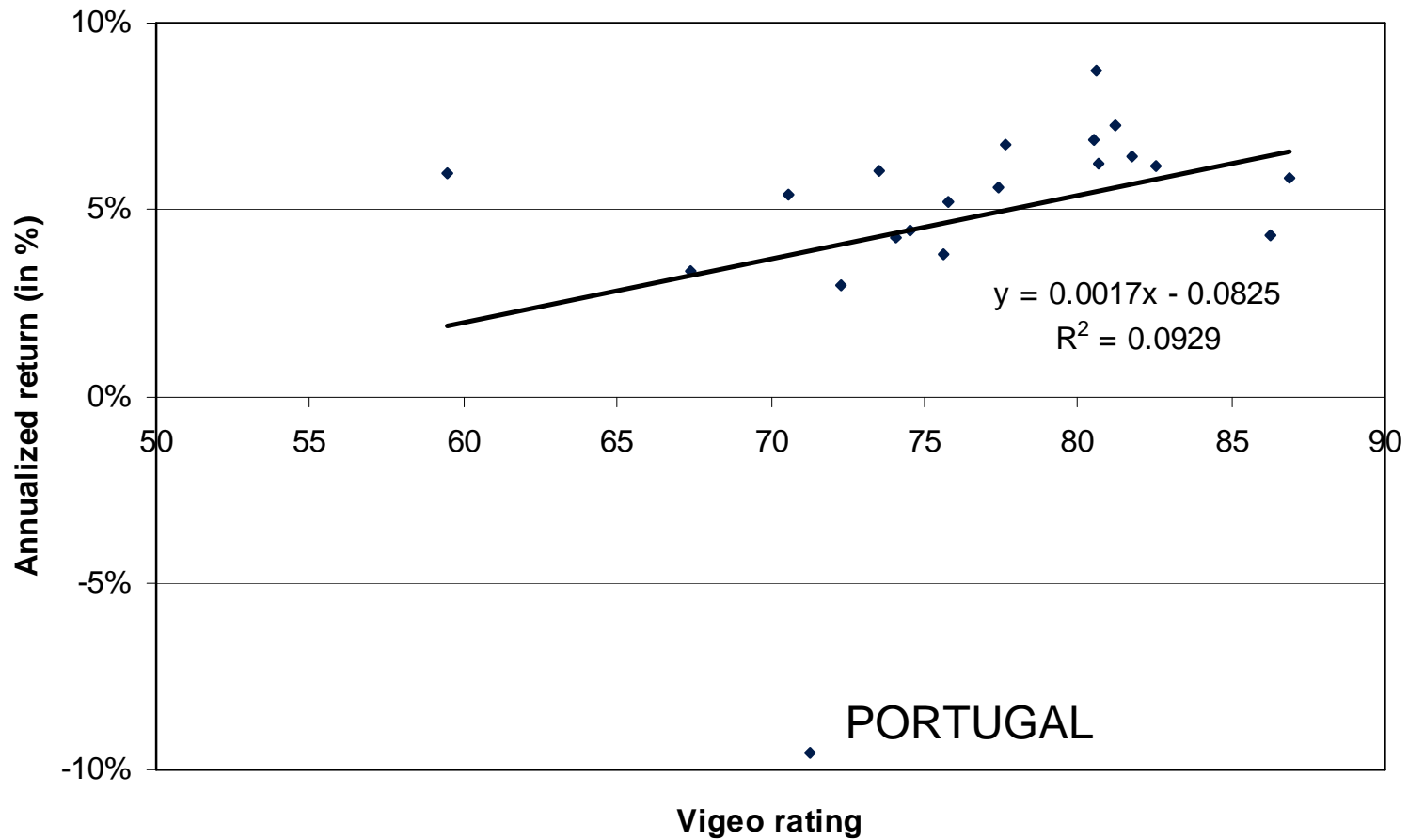


Post-crisis (with hedged indices)

**Total return: 5 best SR rated vs 5 worst SR rated
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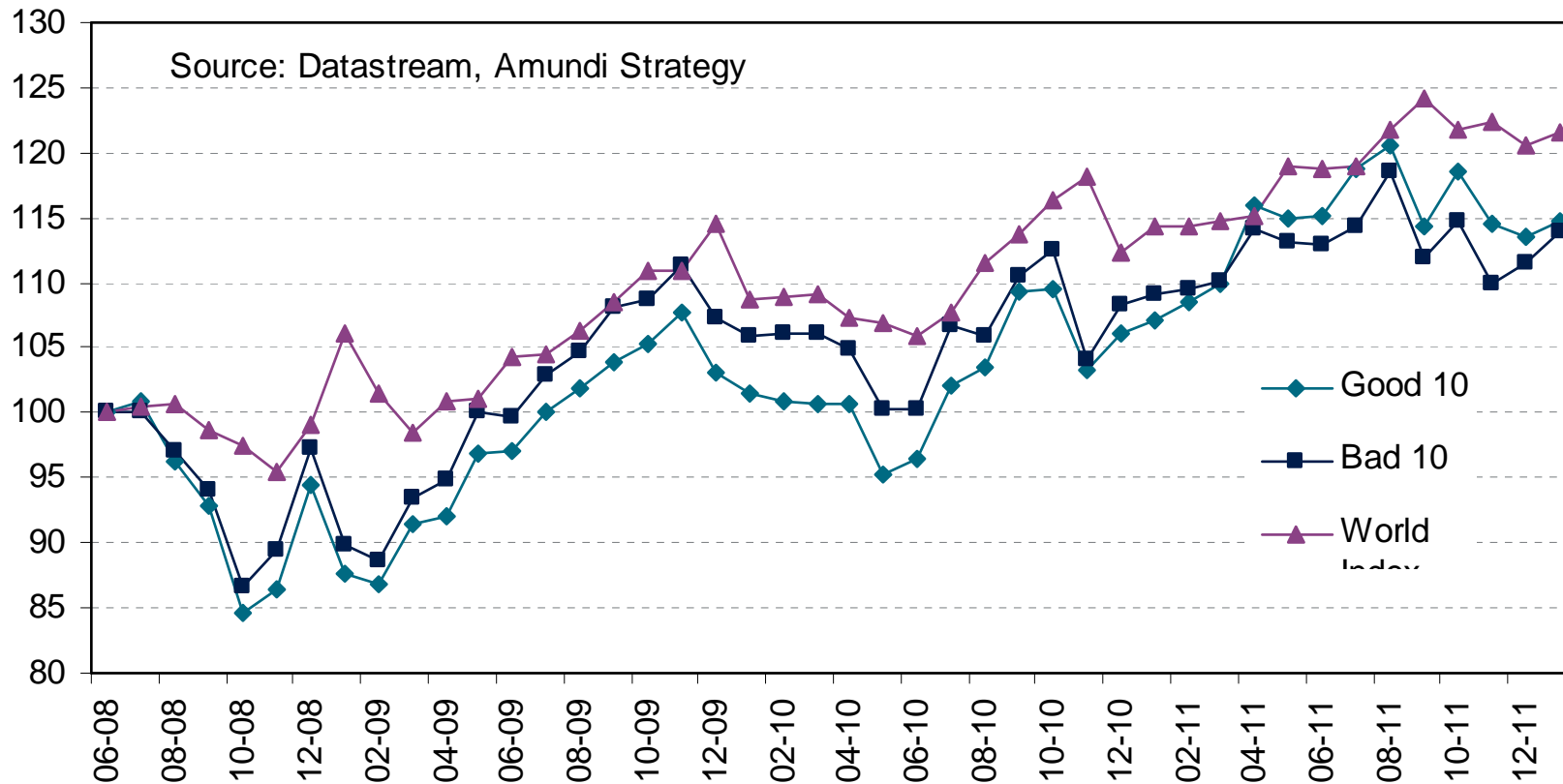


Annualized return vs Vigeo rating



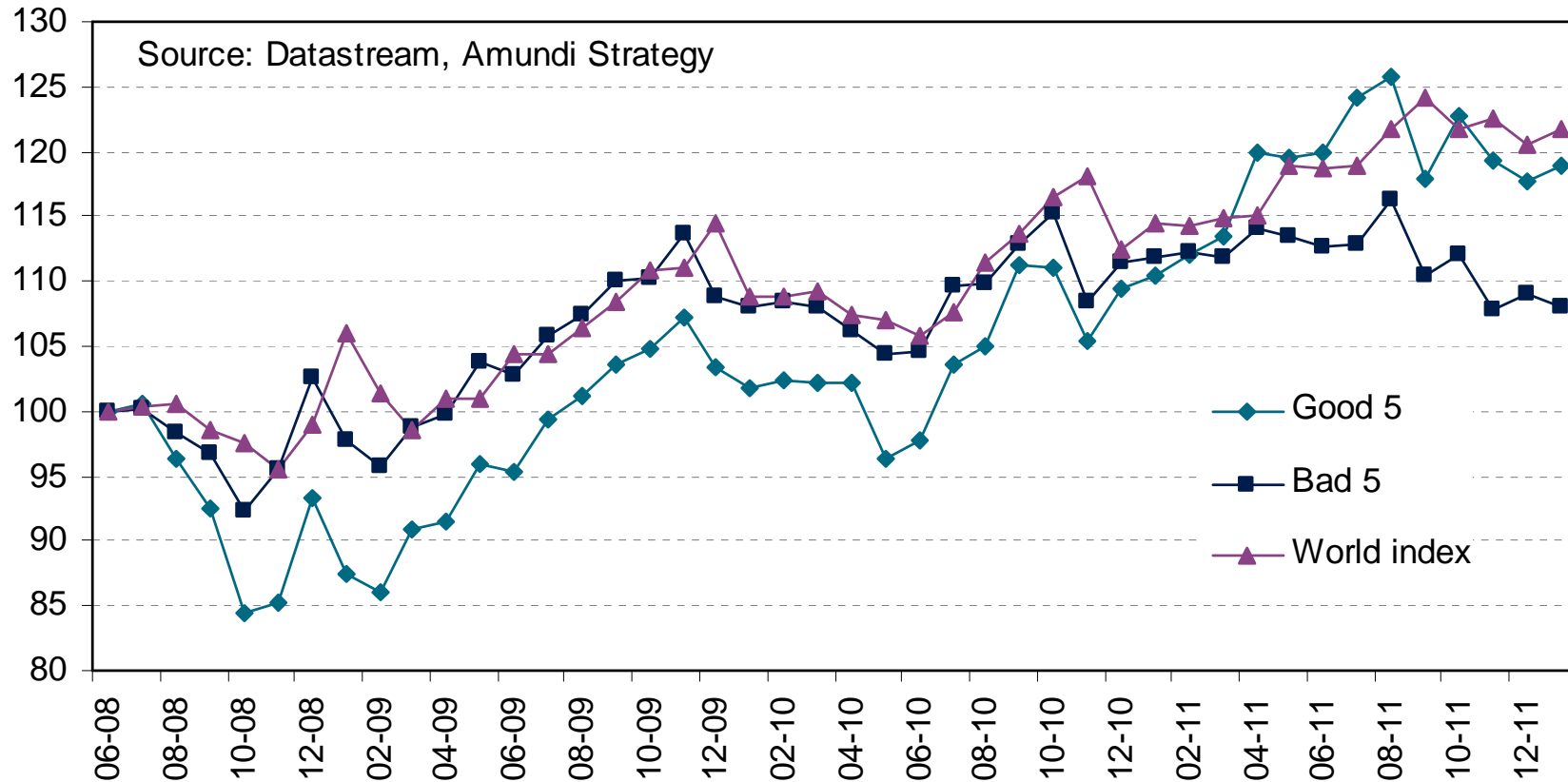
Post-crisis (with unhedged indices)

**Total return: 10 best SR rated vs 10 worst SR rated
(100= June 2008)**



Post-crisis (with unhedged indices)

**Total return: 5 best SR rated vs 5 worst SR rated
(100= june 2008)**



What about unhedged indices?

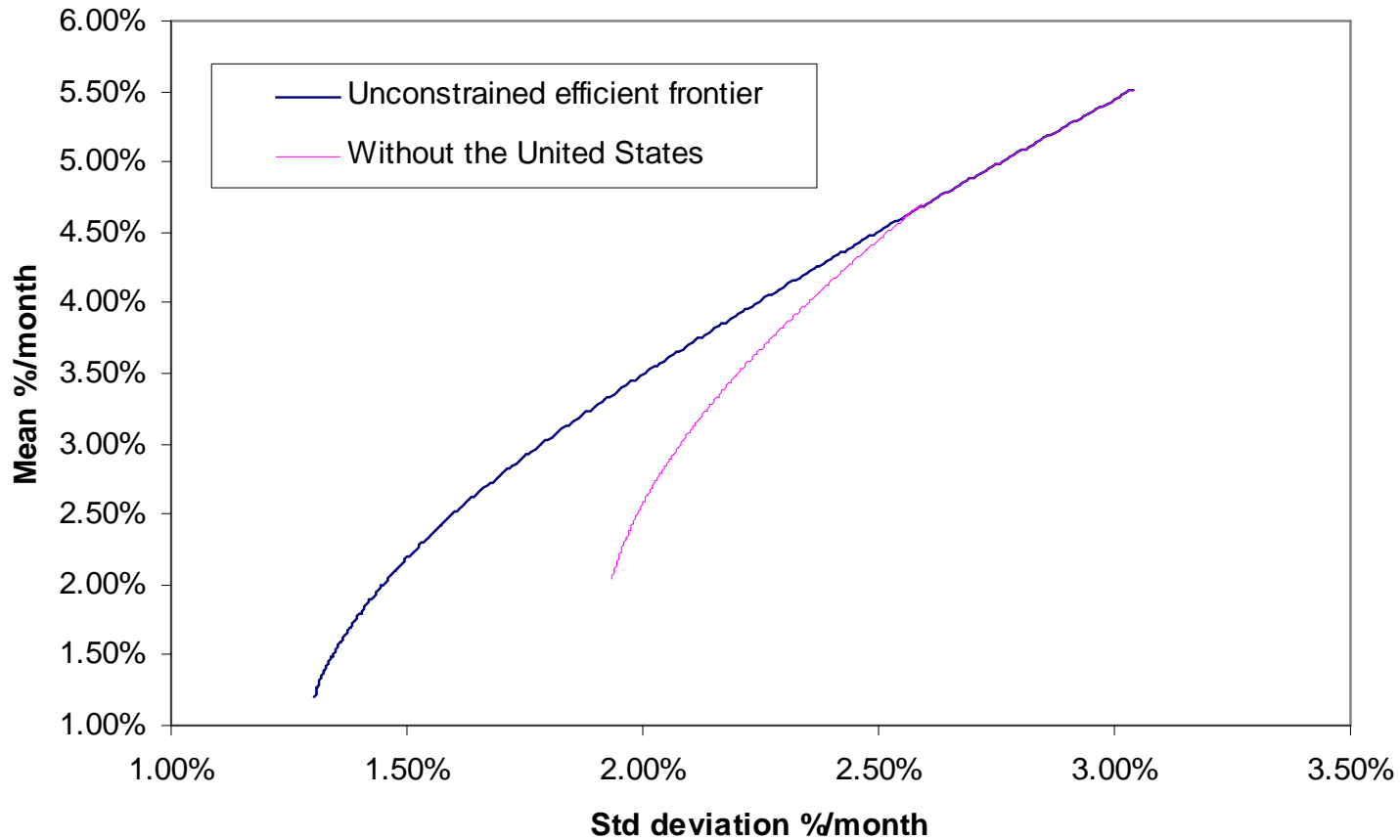
It introduces a FX risk

- Return of a foreign asset is function of the local return and FX return

$$1 + r_f = (1 + r_h)(1 + e)$$

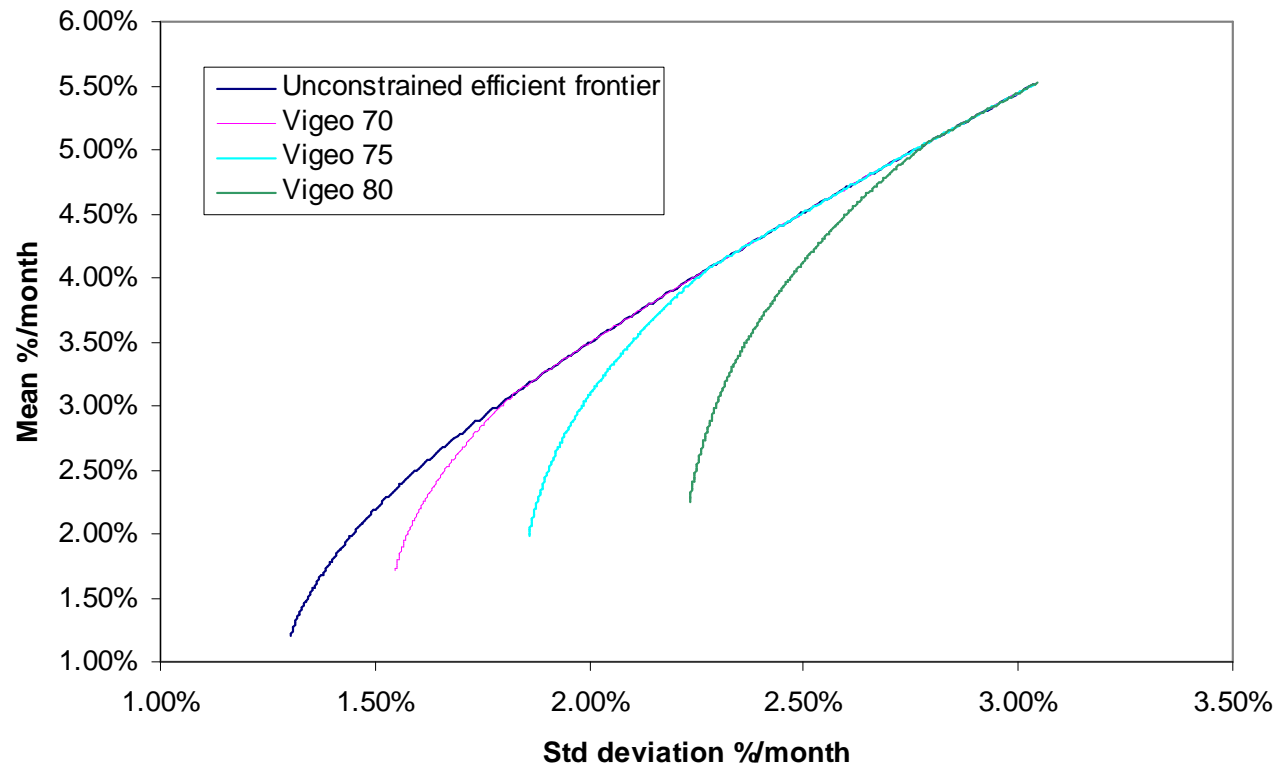
What about pure US exclusion?

Severe impact on the efficient frontier



With unhedged indices

Efficient frontiers defined by the WGBI indexes unhedged for FX in USD dollars with restrictions on the Vigeo Sustainability Country Ratings, period January 1995-December 2008



With unhedged indices

Efficient frontiers defined by the WGBI indexes unhedged for FX in EUR dollars with restrictions on the Vigeo Sustainability Country Ratings, period January 1995-December 2008

