

Characterizing the rating cycles in emerging countries: How do the agencies adapt new information?

Carmen Broto and Luis Molina

Associate Directorate General International Affairs

Banco de España

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OUTLINE

- 1. Motivation**
- 2. Descriptive analysis**
- 3. Empirical analysis**
- 4. Conclusions**
- 5. What's next?**



- **Rating agencies are very relevant players so far**
 - Markets trust in their rankings
 - Strong influence on borrowing costs
 - (Supposedly) permanent updating
- **But their models are sort of a black box (Mora 2006)**

MOTIVATION



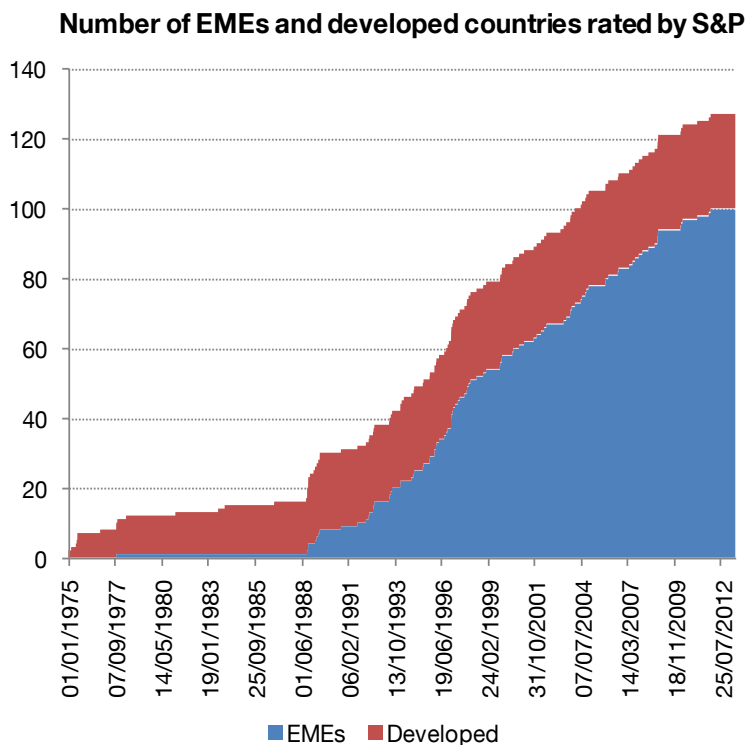
- Aim of the paper:
 - Study rating cycles (not only crisis)
 - Confirm the (suspected) asymmetries between up and down phases
 - Disentangle the determinants of the different behaviour in ups and downs
- Results point to:
 - Improved fundamentals could help smoothing the path of downgrades but do not help accelerating recoveries
 - Infer some lessons for countries now in a downgrade path
- Something new (as far as we know):
 - Link between domestic variables and ratings distinguishing upgrade and downgrade periods
 - Some new control variables
 - Wider sample

DESCRIPTIVE ANALYSIS



• Standard and Poor's sovereign ratings:

- Very wide sample (83 countries in 2000, 127 countries in 2013) running from a long time ago (1975)
- More frequent changes
- Less connected to other agencies' movements (Alsakka & Gwilym, 2010)

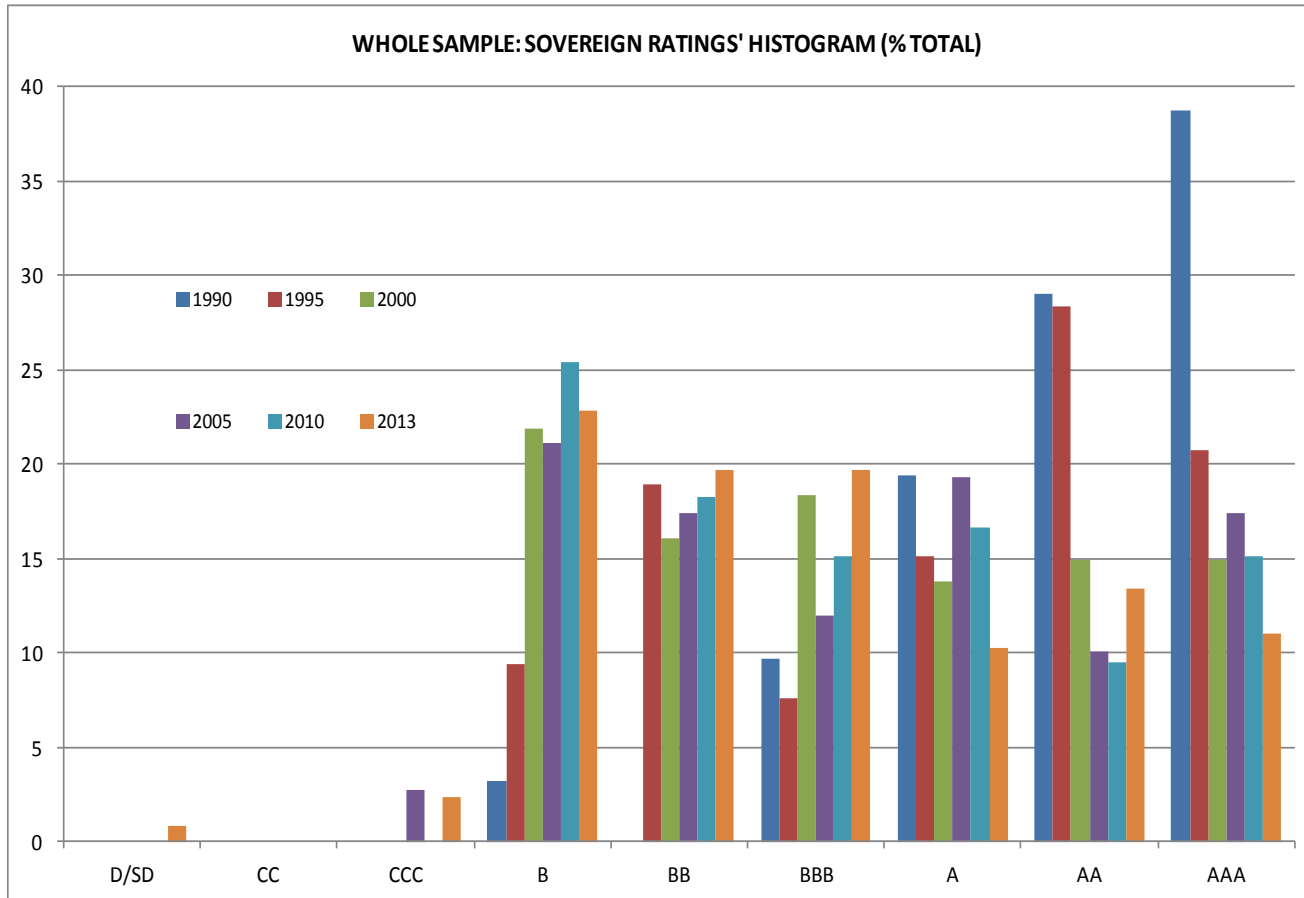


DESCRIPTIVE ANALYSIS



- Frequencies:

- The World is a less safe place.....

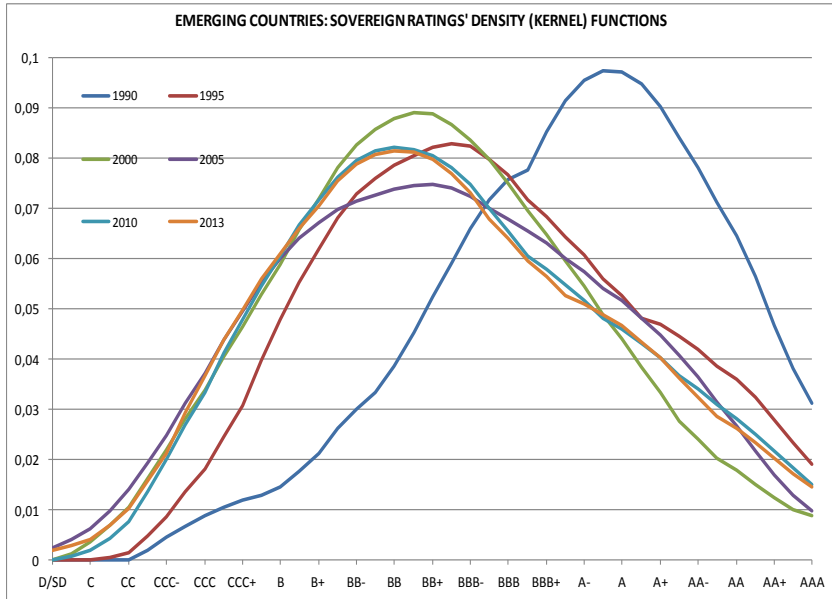


DESCRIPTIVE ANALYSIS

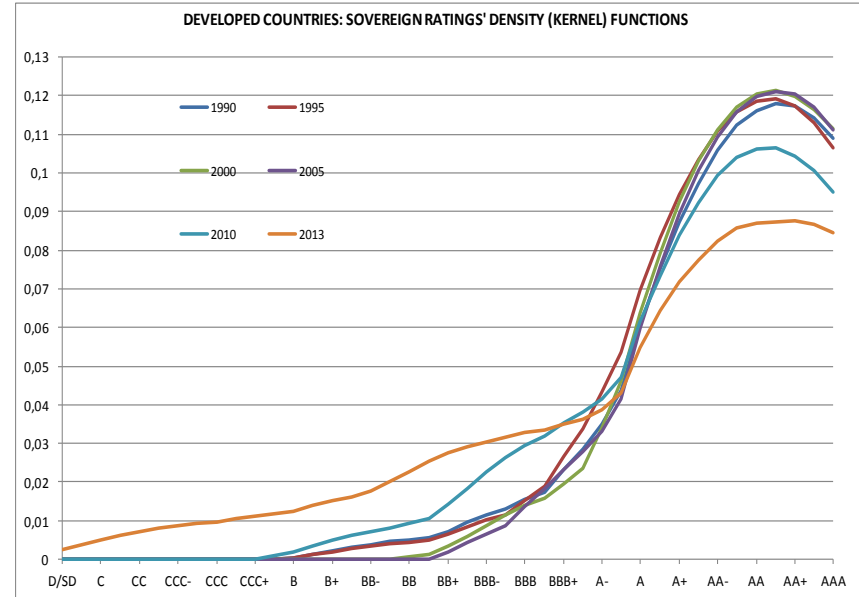


•Frequencies:

- due to an increase in rated EMEs.....
- but also to a scale back of formerly safest assets.



MEDIAN	
1990	A-
1995	BB+
2000	BB+
2005	BB+
2010	BB+
2015	BB

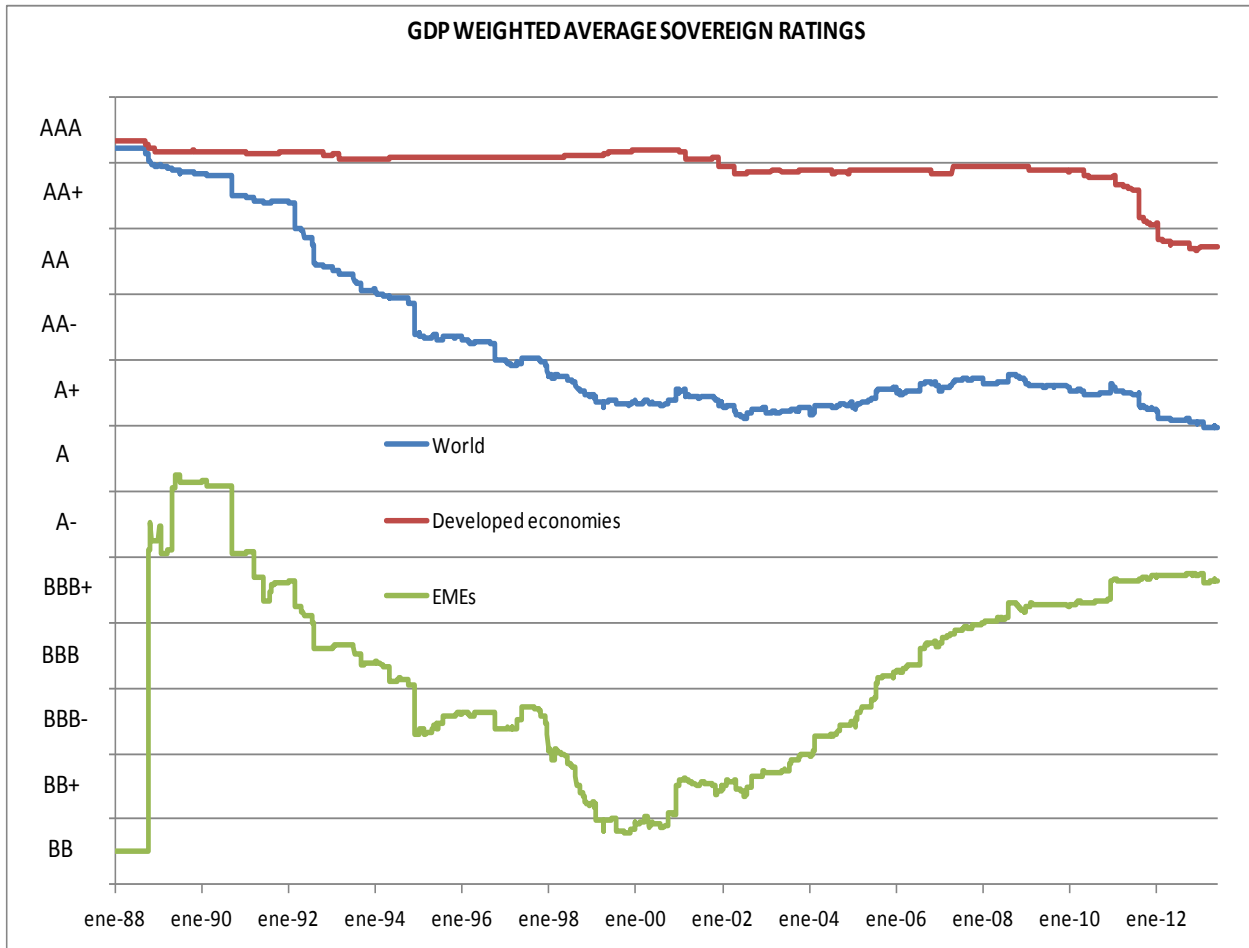


MEDIAN	
1990	AAA
1995	AA+
2000	AA+
2005	AAA
2010	AAA
2013	AA+

DESCRIPTIVE ANALYSIS



- Aggregate ratings for EMEs and Developed countries points to the same:

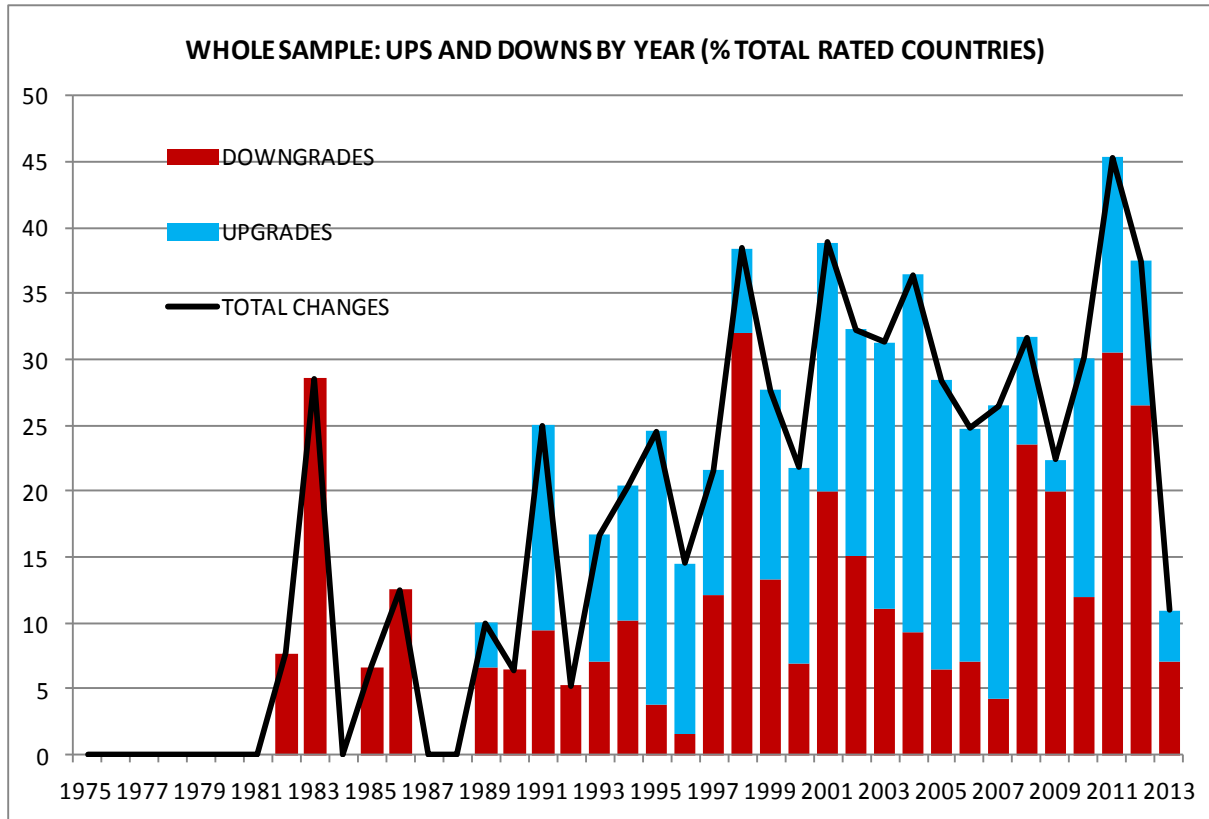


DESCRIPTIVE ANALYSIS



- Assymetries between upgrades and downgrades periods:

- Across time.....

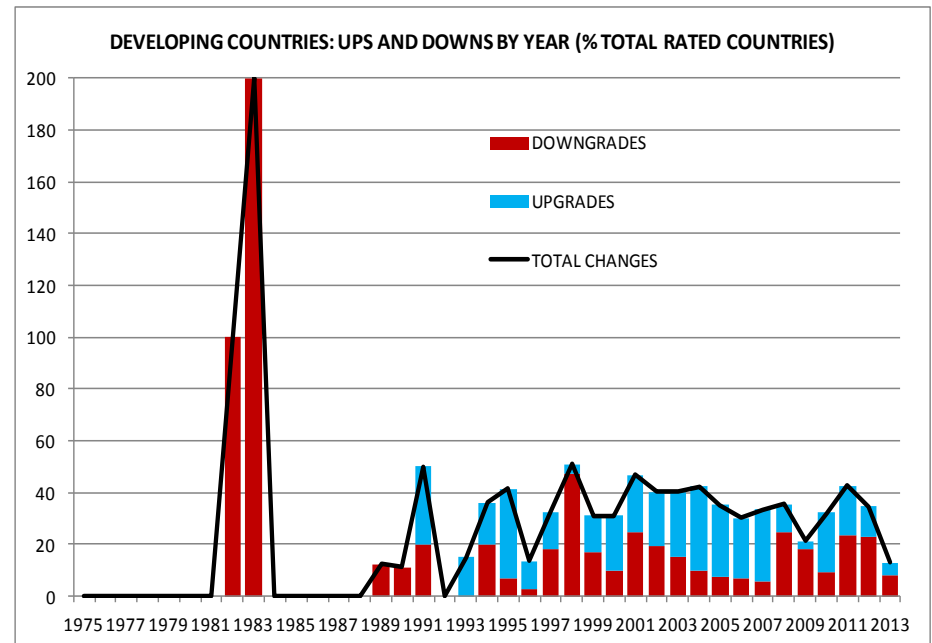
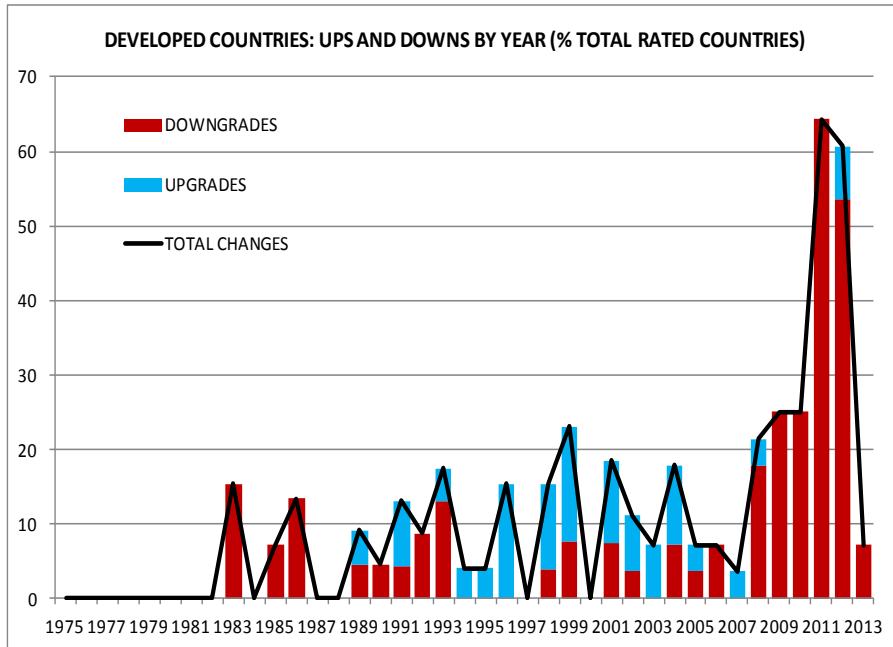


DESCRIPTIVE ANALYSIS



• Assymetries between upgrades and downgrades periods:

• ... between groups.....



DESCRIPTIVE ANALYSIS



• Assymetries between upgrades and downgrades periods:

• ... and, more relevant, within categories

TOTAL

From...	To...								
	AAA	AA	A	BBB	BB	B	CCC	D	
AAA	---	15	0	0	0	0	0	0	0
AA	9	---	10	0	0	0	0	0	0
A	0	13	---	18	1	0	0	0	0
BBB	0	0	16	---	17	1	0	0	0
BB	0	0	0	22	---	25	0	0	0
B	0	0	0	0	25	---	22	6	
CCC	0	0	0	0	0	10	---	15	
D	0	0	0	0	0	14	6	---	

DEVELOPED COUNTRIES

From...	To...								
	AAA	AA	A	BBB	BB	B	CCC	D	
AAA	---	13	0	0	0	0	0	0	0
AA	7	---	7	0	0	0	0	0	0
A	0	3	---	8	0	0	0	0	0
BBB	0	0	1	---	3	0	0	0	0
BB	0	0	0	0	---	2	0	0	0
B	0	0	0	0	0	---	2	0	0
CCC	0	0	0	0	0	0	---	2	
D	0	0	0	0	0	1	1	---	

EMERGING COUNTRIES

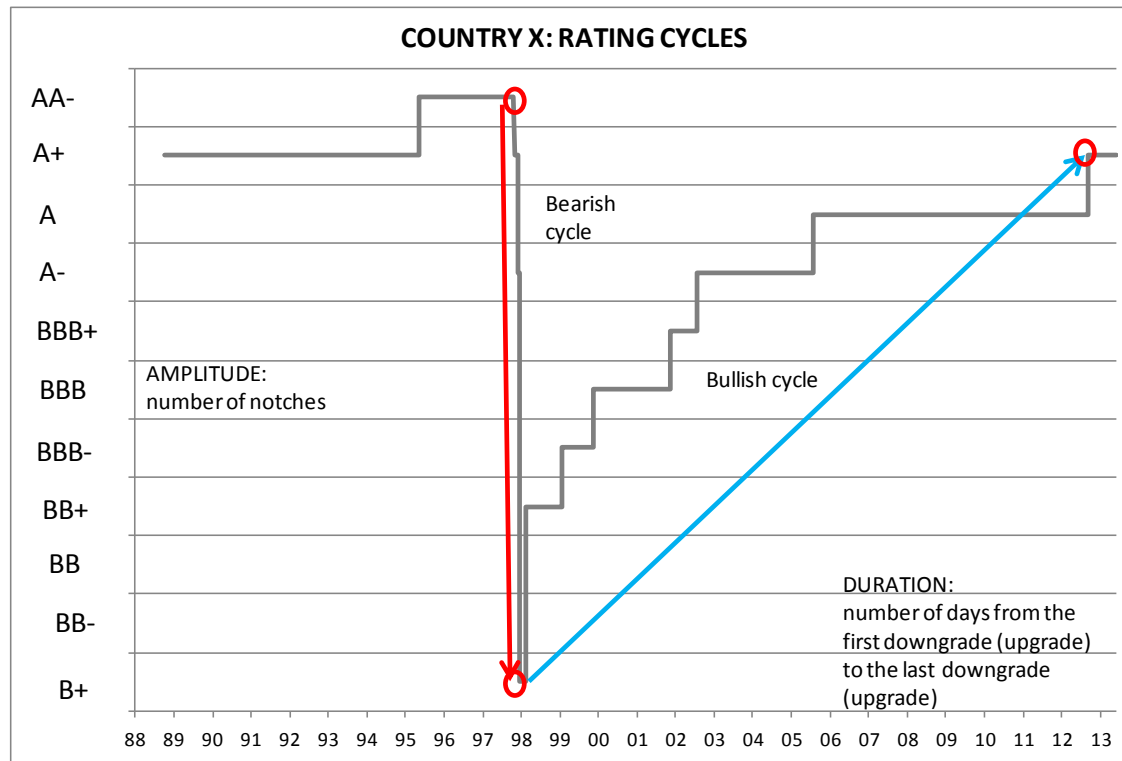
From...	To...								
	AAA	AA	A	BBB	BB	B	CCC	D	
AAA	---	2	0	0	0	0	0	0	0
AA	2	---	3	0	0	0	0	0	0
A	0	10	---	10	1	0	0	0	0
BBB	0	0	15	---	14	1	0	0	0
BB	0	0	0	22	---	23	0	0	0
B	0	0	0	0	25	---	20	6	
CCC	0	0	0	0	0	10	---	13	
D	0	0	0	0	0	13	5	---	

DESCRIPTIVE ANALYSIS



• How do we define a rating cycle?:

- Duration: from through to peak (peak to through): from the day of the first increase (decrease) to the day of the last increase (decrease)
- Amplitude: notches
- Complete cycle: at least one bullish period followed by one bearish period (or vice versa)
- We also consider (for descriptive purposes) countries with only a bullish or a bearish period



DESCRIPTIVE ANALYSIS



• Evidence of strong asymmetries reinforced:

- Mean duration of downgrade periods lower for all groups
- Amplitude of downgrade periods higher for all groups
- But fewer bearish periods
- So downgrades are astonishingly faster than upgrades
- Of those countries which lost IG (BBB-) only 2 (Russia and Colombia) recovered it and improved their previous status

	Mean duration (days)		Mean amplitude (notches)		Number of cycles		Days between changes	
	Trough-Peak	Peak-Trough	Trough-Peak	Peak-Trough	Bullish	Bearish	Bullish	Bearish
G-20:								
Argentina	489	221	8	-6	1	2	61	37
Australia	1375	1058	2	-2	1	1	688	529
Brazil	1622	---	4	---	2	0	463	---
Canada	---	---	---	---	0	0	---	---
China	2494	---	5	---	1	0	499	---
France	---	---	---	---	0	0	---	---
Germany	---	---	---	---	0	0	---	---
India	728	2787	2	-3	1	1	364	929
Indonesia	3009	631	11	-10	1	2	274	66
Italy	---	6892	---	-6	0	1	---	1149
Japan	---	418	---	-3	0	1	---	139
South Korea	5322	60	9	-10	1	1	591	6
Mexico	2769	---	4	---	1	0	692	---
Russia	2097	233	14	-9	1	1	150	26
Saudi Arabia	3609	---	2	---	1	0	1805	---
South Africa	3545	---	4	---	1	0	886	---
Turkey	3533	376	5	-4	1	2	707	94
United Kingdom	---	---	---	---	---	---	---	---
United States	---	---	---	---	0	0	---	---

DESCRIPTIVE ANALYSIS



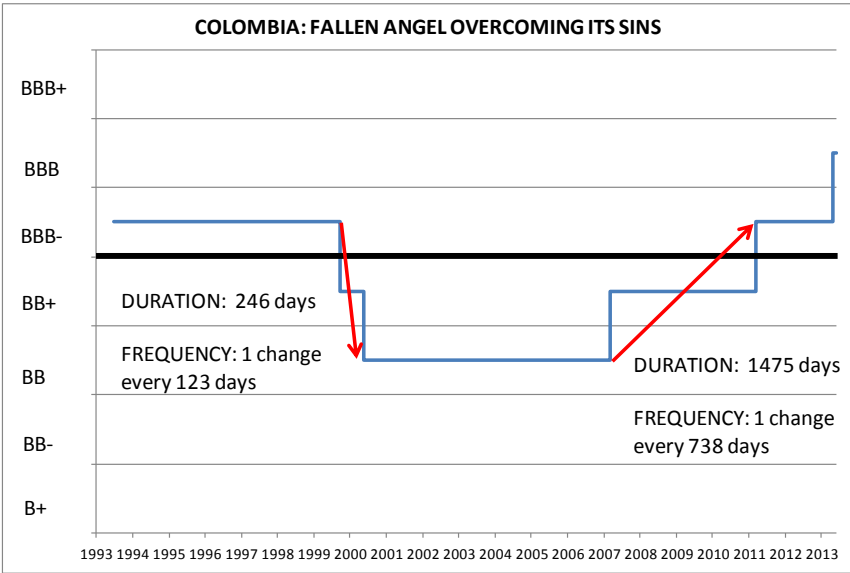
	Mean duration (days)		Mean amplitude (notches)		Number of cycles		Days between changes	
	Trough-Peak	Peak-Trough	Trough-Peak	Peak-Trough	Bullish	Bearish	Bullish	Bearish
<i>Other relevant countries:</i>								
Greece	2076	2659	5	-17	1	1	415	156
Ireland	4375	735	4	-7	1	1	1094	105
Portugal	2609	2394	3	-9	1	1	870	266
Spain	2075	1363	2	-9	1	1	1038	151
Cyprus	---	625	---	-8	0	2	---	83
Hungary	1516	2354	4	-5	1	1	379	471
Uruguay	3231	457	12	-12	1	1	269	38
Colombia	2245	246	3	-2	1	1	748	123
Venezuela	920	1387	4	-6	1	3	230	219
EMEs	1865	876	4	-5	62	47	436	169
- Latam	2150	955	5	-6	16	19	405	158
- Eastern Europe	1310	713	4	-4	21	11	328	191
- Developing Asia	1593	636	4	-5	14	11	384	117
- Rest of EMEs	2856	1365	3	-5	11	6	827	303
Developed countries	2386	1873	3	-6	9	15	859	319
- Euro Area	2602	2230	3	-7	5	10	765	310
- Periphery	2784	2437	4	-8	4	9	795	318

DESCRIPTIVE ANALYSIS

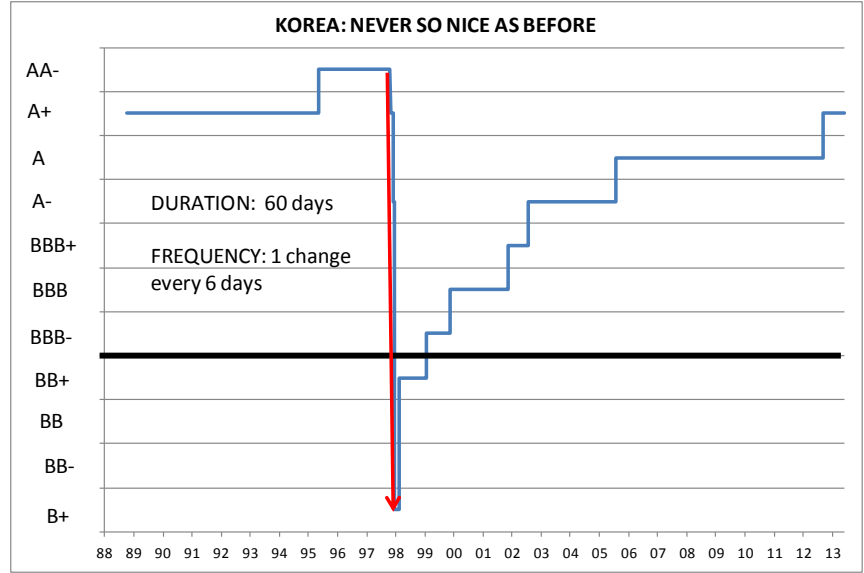


- Evidence looking at some countries:

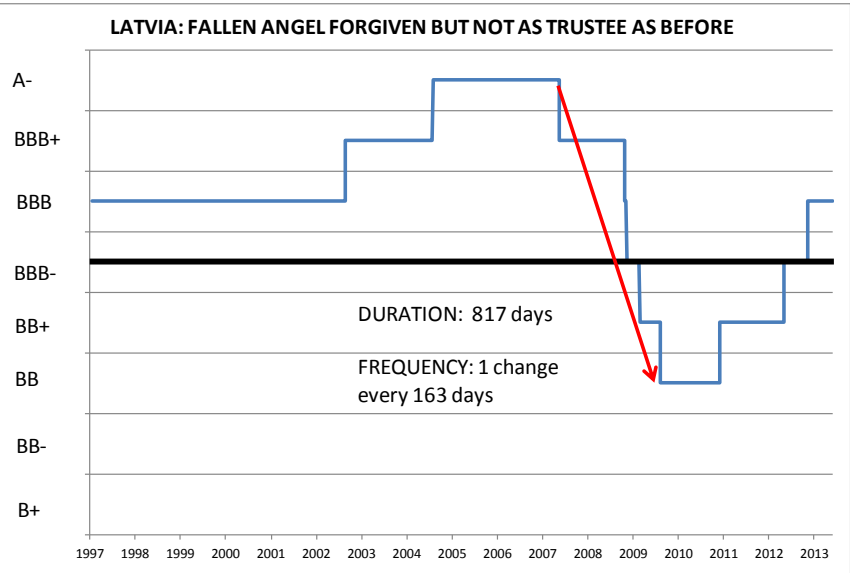
COLOMBIA: FALLEN ANGEL OVERCOMING ITS SINS



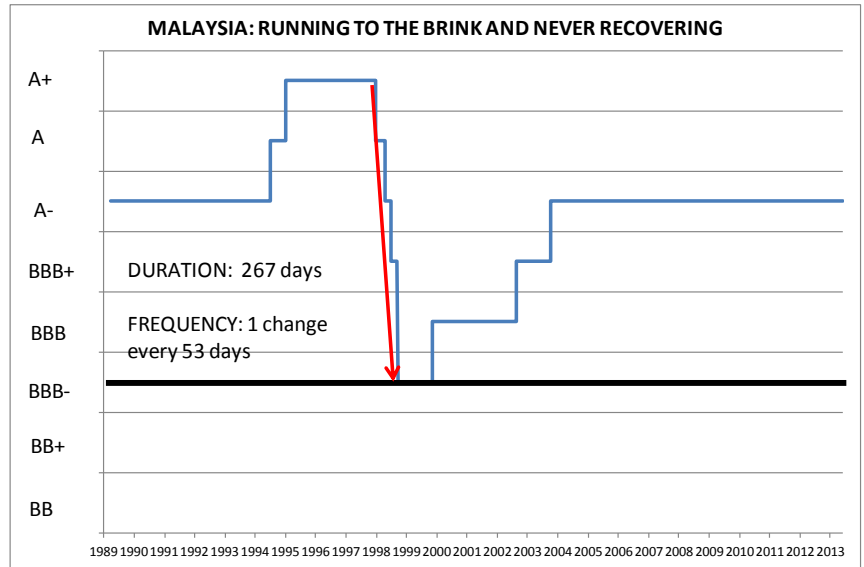
KOREA: NEVER SO NICE AS BEFORE



LATVIA: FALLEN ANGEL FORGIVEN BUT NOT AS TRUSTEE AS BEFORE



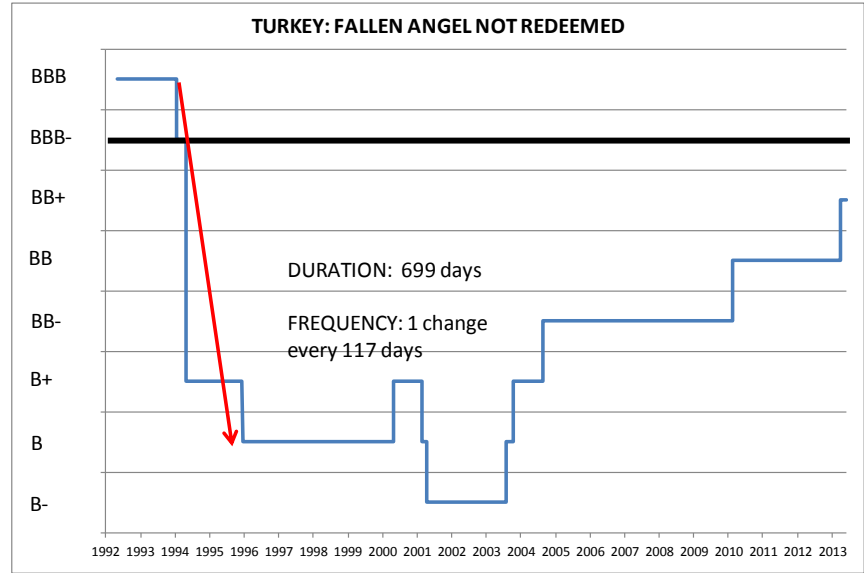
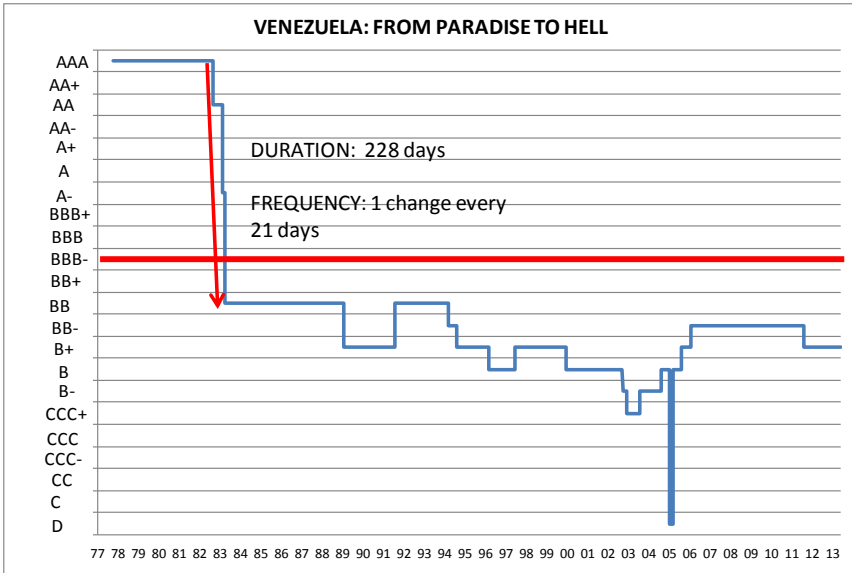
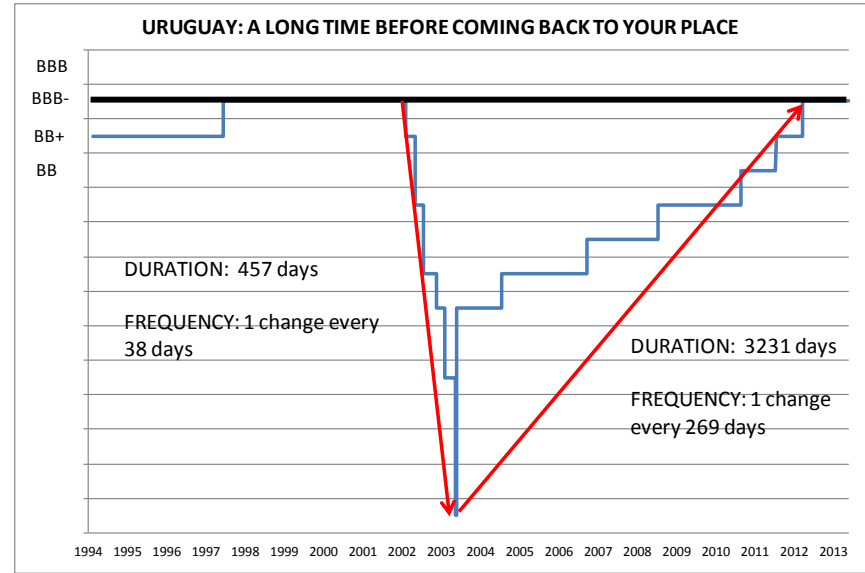
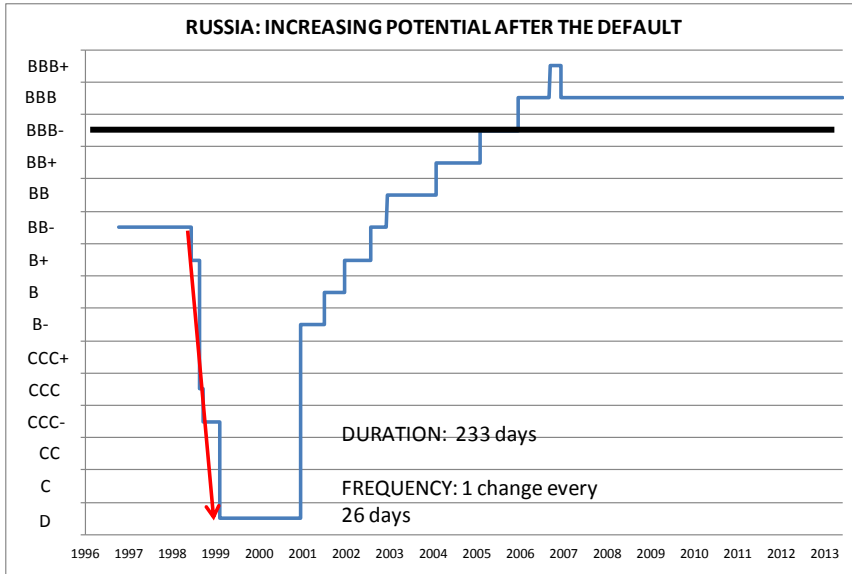
MALAYSIA: RUNNING TO THE BRINK AND NEVER RECOVERING



DESCRIPTIVE ANALYSIS



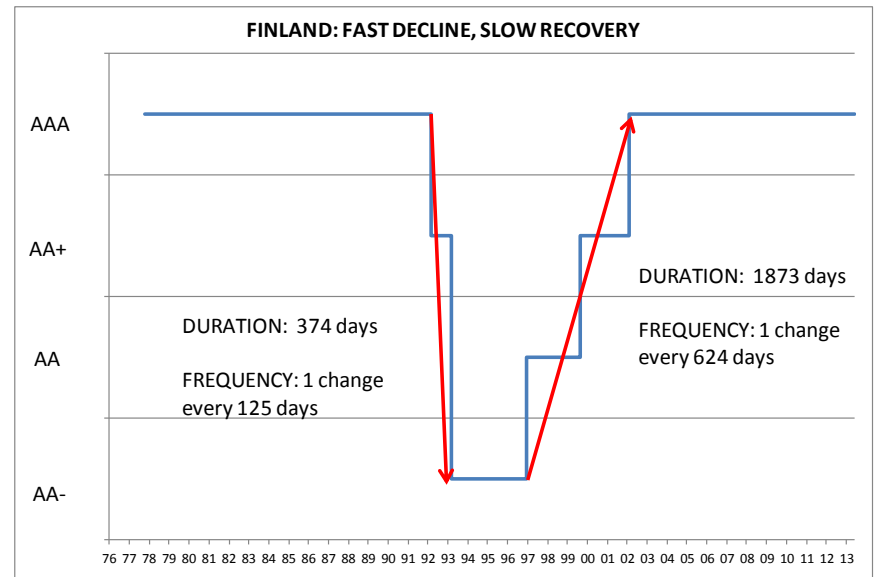
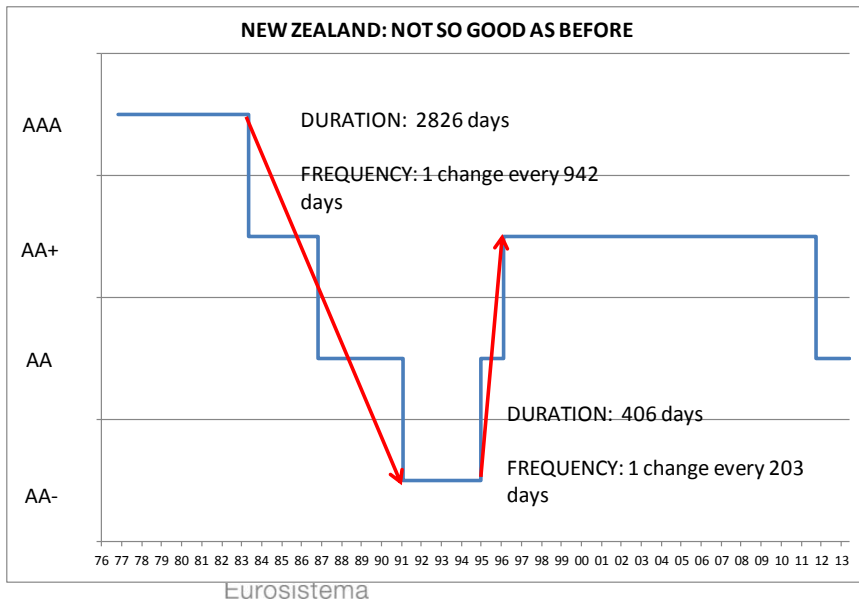
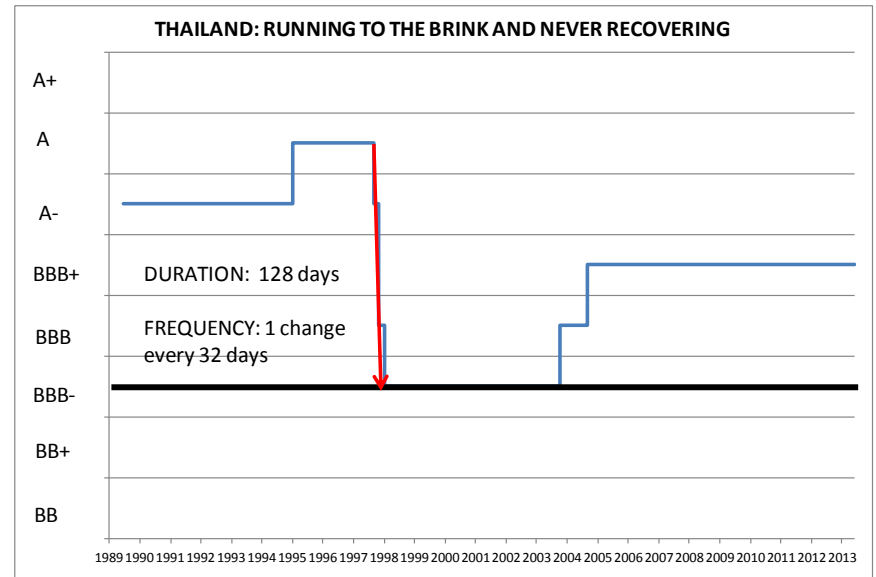
- Evidence looking at some countries:



DESCRIPTIVE ANALYSIS




- Evidence looking at some countries:



DESCRIPTIVE ANALYSIS




- But how is this possible?:

- Fundamentals deteriorate at a faster speed than they improve after a crisis (?) 
- Agencies do not adjust in an accurate way to the domestic indicators (Ferri et al 1999; Monfort and Mulder 2000; Mora 2006)
- Through-the-cycle methodology that agencies are supposed to apply in their rating assignments leads to more stable but less accurate ratings (Löffler 2004; Altman and Rijken 2005; Kiff et al. 2013; Cantor and Mann, 2006).
- Other authors conclude the adequacy of the actual ratings to their models based on the countries' fundamentals (Hu et al. 2002)
- In this paper we propose an “agencies-in-bad-mood” sort of explanation

DATASET



- 67 countries (43 EMEs and 24 developed) from 1Q 1994 to 1Q 2013 
- Rating categories transformed to numerical groups from 0 (D/SD) to 21 (AAA)
- Usual control variables:
 - Domestic macro indicators: GDP growth, expected GDP growth (NEW!), GDP per capita, CPI inflation, current account balance over GDP, Reserves over GDP and public sector balance over GDP
 - Domestic financial variables: real effective exchange rate changes, credit over GDP
 - Global variables; VIX, US 3 month interest rate, World GDP growth
 - Dummies: EME vs developed, euro zone (halo effect), region and IMF agreement
- The “we-are-in-certain-mood” dummy:

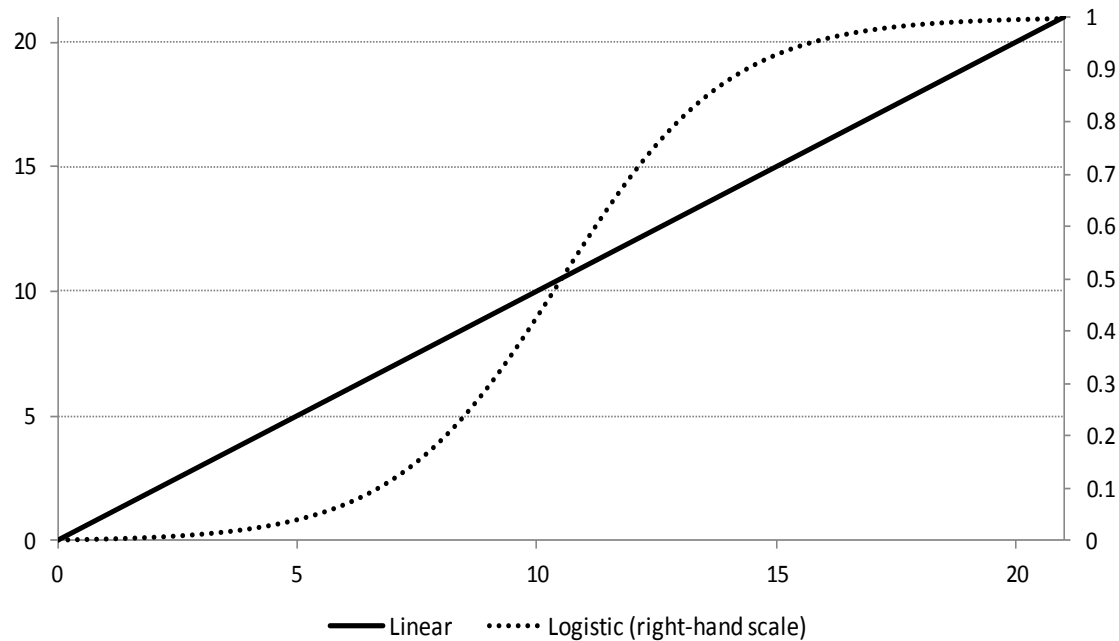
$$DRATING_{-n_{it}} = \begin{cases} 1 & \text{if } RATING_{it} - RATING_{it-1} < 0 \\ 0 & \text{otherwise} \end{cases}$$

$$DRATING_{-p_{it}} = \begin{cases} 1 & \text{if } RATING_{it} - RATING_{it-1} > 0 \\ 0 & \text{otherwise} \end{cases}$$

EMPIRICAL MODEL



- First choice is ordered logit model.....
- But as the BBB- category is a trigger point we can also use a logistic transformation of our linear dependent variable



- Results are robust in both specifications (and ordered logit has severe identification problems)

MAIN RESULTS



- Previous rating downgrades have a strong (negative) influence on future ratings.....
- ... but previous rating upgrades do not
- Asymmetry intensify in the post crisis period
- Control variables in line with other papers

		OLS			Ordered logit		
		Total sample	Pre-crisis	Post-crisis	Total sample	Pre-crisis	Post-crisis
	DRATING_n	-1.03***	-0.49**	-0.98***	-2.04***	-0.99***	-2.02***
	DRATING_p	-0.22	0.04	-0.22	0.13	0.28	0.49
Domestic economic	GDP_growth	0.01	-0.06***	0.05**	0.00	-0.06**	0.01
	GDP_f	0.35***	0.28***	0.44**	0.54***	0.46***	0.59**
	GDP_pc	0.00***	0.00***	0.00***	0.00***	0.00***	0.01***
	INFL	-0.06***	-0.05***	0.07*	-0.04***	-0.02*	-0.07
	CA	-0.10***	-0.11***	-0.11***	-0.10***	-0.10***	-0.16***
	PB_GDP	-0.02	0.03	-0.11***	0.17***	0.02	-0.07
	RES	0.01***	0.04***	0.00	0.00*	0.04***	0.00
Domestic financial	REER	0.05***	0.06***	0.00	0.06***	0.07***	0.00
	CR	-0.01***	-0.01***	-0.03***	-0.01**	-0.01*	-0.02**
Global	VIX	0.01	0.01	0.02	-0.07	-0.17	-0.09
	US3M	0.17*	0.03	-0.11	3.20	-0.29	4.36
	WG	-0.03	0.05	-0.07	-0.41	-0.43	-0.57
Categorical	ZE	2.44***	-11.39***	25.35***	6.54***	-4.61	20.46***
	REGION	1.85***	2.11***	6.48***	1.23***	0.02	2.66***
	EME	-9.39***	-17.44***	24.41***	-8.61***	-31.39***	5.22
	IMF	-1.08***	-0.48***	-1.17***	-0.81***	-0.39***	-2.08***
N		3318	2171	1147	3318	2171	1147
R2		0.91	0.95	0.93	0.59	0.71	0.65

MAIN RESULTS: EMES VS. DEVELOPED



- Main result maintained in both groups
- Effect of bad mood seems to be the same in EMEs and developed
- Effect of domestic variables different

		OLS		Ordered logit	
		EMEs	Developed	EMEs	Developed
	DRATING_n	-0.82**	-1.04**	-1.64***	-1.70***
	DRATING_p	-0.03	-1.19	0.24	0.63
Domestic economic	GDP_growth	-0.04*	0.13***	-0.03*	0.07
	GDP_f	0.40***	-0.04	0.64***	0.44***
	GDP_pc	0.00***	0.00***	0.00***	0.01***
	INFL	-0.06***	0.07	-0.04***	0.07
	CA	-0.14***	-0.02	-0.14***	0.06
	PB_GDP	0.04	-0.13***	0.05	0.10**
	RES	0.01***	0.00	0.01**	0.00
	Domestic financial	REER	0.06***	-0.01	0.05***
CR		-0.01	0.00	-0.02**	-0.01
Global	VIX	0.01	0.00	0.04	-0.46
	US3M	0.04	0.23**	1.98	8.80
	WG	0.07	-0.25**	-0.41	-1.84
Categorical	ZE	12.08***	-3.85**	14.83***	12.89***
	REGION	2.17***	(omitted)	1.10***	(omitted)
	IMF	-0.69***	-2.41***	-0.45***	-3.33***
N		2025	1293	2025	1293
R ²		0.90	0.78	0.55	0.67

MAIN RESULTS



- Interactions of domestic variables with the bad mood dummy:
 - Few significant
 - GDP growth an improved external balance soften the negative path
 - Also the public balance (and Reserves prior to the crisis) for EMEs

	Total sample			EMEs		
	Total sample	Pre-crisis	Post-crisis	Total sample	Pre-crisis	Post-crisis
Domestic * DRATING_n						
GDP_growth	0.17***	0.07	0.11*	0.10*	0.01	-0.26*
GDP_f	-0.43***	-0.30**	-0.43	-0.23*	-0.30**	2.29
GDP_pc	0.00**	0.00	0.00**	0.00	0.00	0.00*
INFL	0.00	0.01	-0.02	0.01	0.01	0.20
CA	0.08***	0.04	-0.01	0.03	-0.03	0.06
PB_GDP	0.01	-0.03	0.03	0.29**	0.06	0.38
RES	0.01	0.03	0.00	-0.01	0.03*	0.00
REER	0.00	-0.01	0.01	-0.01	-0.01	-0.01
CR	-0.01	0.00	-0.01	-0.01	-0.01	0.00

MAIN RESULTS



- Interactions of domestic variables with the good mood dummy:
 - Almost none significant
 - Except public sector balance (not for EME but for.....)
 - And accumulating Reserves (post crisis)
 - Nothing can be done to speed up the upgrades?

		Total sample			EMEs		
		Total sample	Pre-crisis	Post-crisis	Total sample	Pre-crisis	Post-crisis
Domestic * DRATING_p	GDP_growth	0.07	-0.01	-0.04	0.01	-0.01	-0.09
	GDP_f	0.07	0.13	0.05	0.07	0.15	-0.07
	GDP_pc	0.00	0.00	0.00	0.00	0.00	0.00
	INFL	-0.02	-0.03	0.08	-0.03	-0.03	0.04
	CA	-0.05*	-0.04	-0.05	-0.03	-0.03	-0.03
	PB_GDP	0.12**	0.05	0.06	0.02	0.03	-0.02
	RES	0.01*	0.00	0.01***	0.00	0.00	0.00
	REER	0.00	0.01	0.01	0.01	0.01*	0.00
	CR	-0.01	0.00	-0.01*	0.00	0.00	0.00

MAIN RESULTS



- Interactions of domestic variables with the certain mood dummies:

- GDP growth smooth downgrading path (post crisis)
- To be rich is also a good thing
- Austerity matters only in upgrading paths (for developed)
- A cushion of reserves smooth the downgrades in EMEs

		Total sample			EMEs		
		Total sample	Pre-crisis	Post-crisis	Total sample	Pre-crisis	Post-crisis
Domestic * DRATING_n	GDP_growth	0.18***	0.08	0.12*	0.11*	0.02	-0.26*
	GDP_f	-0.45***	-0.31**	-0.43	-0.23*	-0.30**	2.27
	GDP_pc	0.00**	0.00	0.00**	0.00	0.00	0.00*
	INFL	0.00	0.01	-0.02	0.01	0.01	0.20
	CA	0.08**	0.04	-0.01	0.03	-0.03	0.07
	PB_GDP	0.02	-0.03	0.04	0.29**	0.07	0.38
	RES	0.01	0.03	0.00	-0.01	0.03*	0.00
	REER	0.00	0.00	0.01	0.00	0.00	-0.01
	CR	-0.01	0.00	-0.01	-0.01	-0.01	0.00
Domestic * DRATING_p	GDP_growth	0.09	0.00	-0.04	0.02	0.00	-0.09
	GDP_f	0.04	0.10	0.04	0.06	0.13	-0.06
	GDP_pc	0.00	0.00	0.00	0.00	0.00	0.00
	INFL	-0.02	-0.03	0.10	-0.03	-0.03	0.06
	CA	-0.05*	-0.04	-0.05	-0.03	-0.03	-0.03
	PB_GDP	0.12**	0.05	0.05	0.03	0.03	-0.02
	RES	0.01*	0.00	0.01***	0.00	0.01	0.00
	REER	0.00	0.01*	0.01	0.01	0.01*	0.00
	CR	-0.01	0.00	-0.01**	0.00	0.00	0.00

CONCLUSIONS



- Downgrade phases deeper and faster than upgrade phases
- Domestic variables could be helpful to smooth the path of downgrades but are not helpful to accelerate the path of recoveries
- Reaction of rating agencies to fundamentals different in upgrade and downgrade phases (sticky versus procyclical)
- This calls for not to leave alone a downgraded country (during downgrades) and for not to set apart adjustment policies (during upgrades)
- Are sovereign ratings a (good) external disciplinary device for countries?: not so much (markets neither (Alberola et al 2011), so what?)

WHAT'S NEXT?

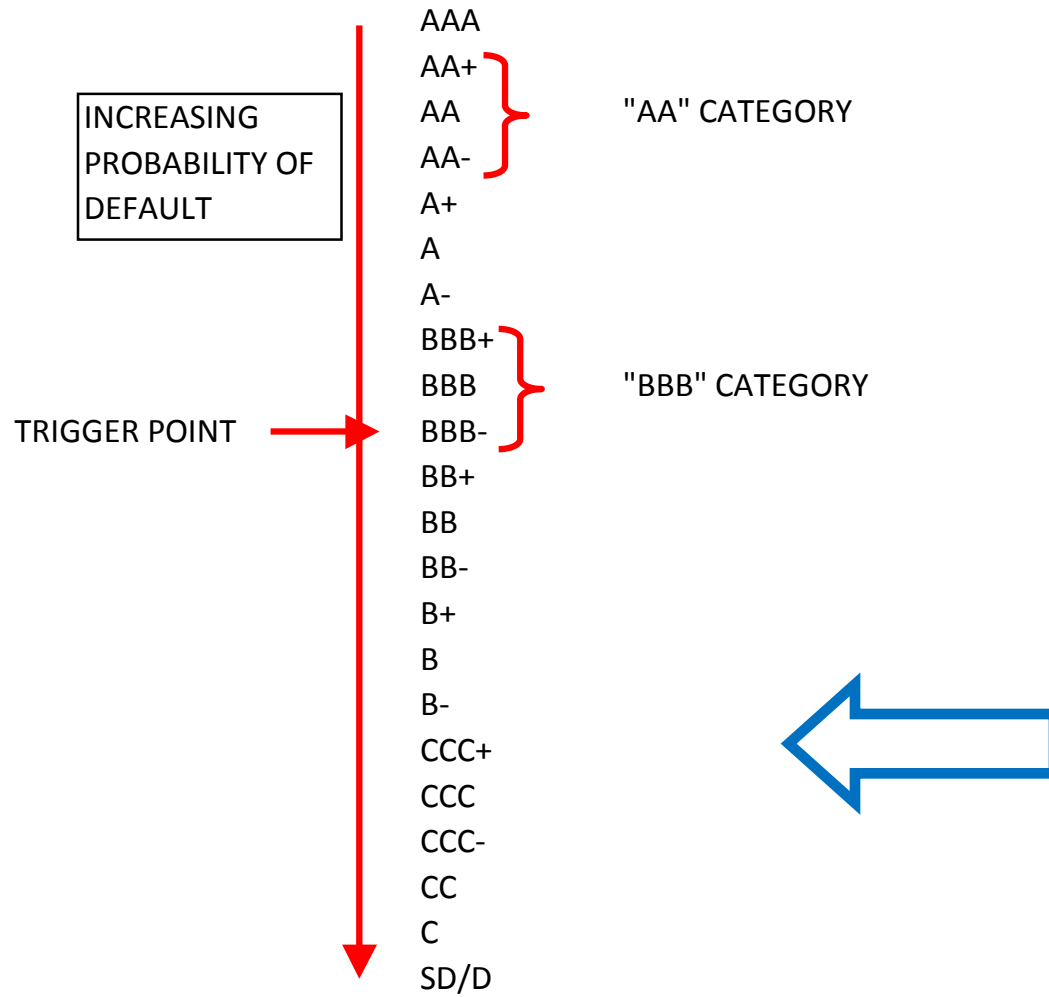
- Has agencies' model improve (change) over time?
- Define better the bad mood dummy:
 - **Use watch as well as ratings changes**
 - **Use differences with market valuations (implicit ratings)**
- Improve econometrics (maybe matching models)
- Update to include recent changes



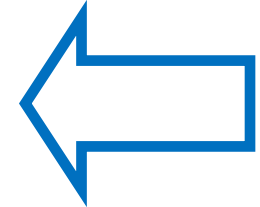
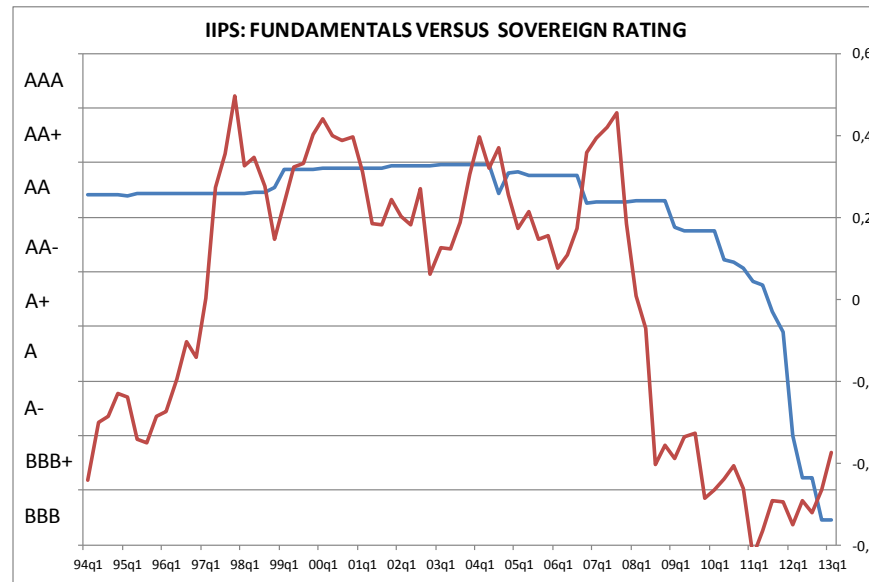
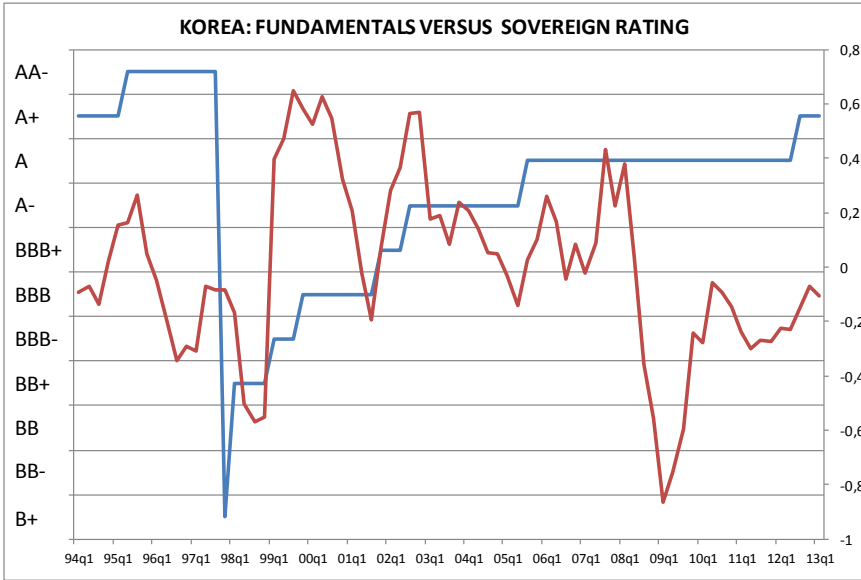


THANK YOU

DATA

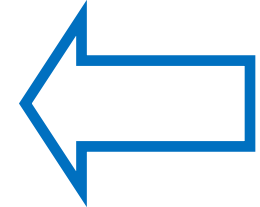


FUNDAMENTALS VERSUS RATING





Argentina	Hungary	Paraguay
Australia	Iceland	Peru
Austria	India	Philippines
Belgium	Indonesia	Poland
Bermuda	Ireland	Portugal
Bolivia	Israel	Qatar
Brazil	Italy	Romania
Bulgaria	Japan	Russian Federation
Canada	Jordan	Singapore
Colombia	Kazakhstan	Slovak Republic
Croatia	Korea, Rep.	Slovenia
Cyprus	Latvia	South Africa
Czech Republic	Lithuania	Spain
Chile	Luxembourg	Sweden
China	Malaysia	Switzerland
Denmark	Malta	Thailand
Egypt, Arab Rep.	Mexico	Trinidad and Tobago
Estonia	Netherlands	Turkey
Finland	New Zealand	United Kingdom
France	Norway	United States
Germany	Oman	Uruguay
Greece	Pakistan	Venezuela, RB
Hong Kong SAR, China		



RATINGS AND IMPLICIT RATINGS

