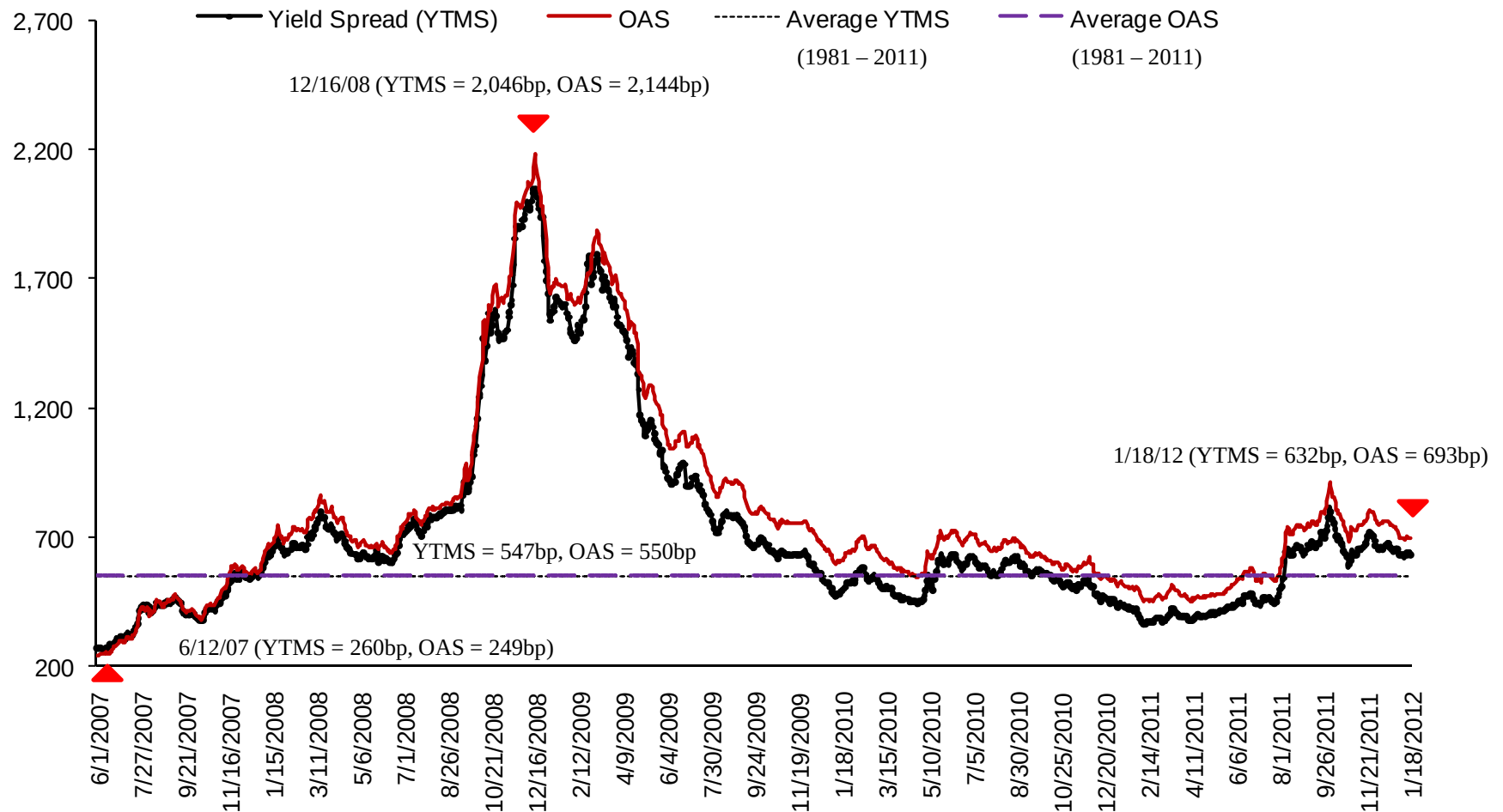

A New Way to Assess Sovereign Default Risk: From the Bottom-Up

Dr. Edward Altman
NYU Stern School of Business

NASDAQ DRP Research Day Conference 2012
New York
February 03, 2012

YTM & Option-Adjusted Spreads Between High Yield Markets & U.S. Treasury Notes

June 01, 2007 – January 18, 2012



Sources: Citigroup Yieldbook Index Data and Bank of America Merrill Lynch.

Major Risks Going Forward (For 2012)

- Real Economy – Primarily U.S. (Double-Dip?): Impact on Default Rates, Credit Availability & Credit Quality
- Sovereign Debt Crisis – Europe
 - Looming Corporate Defaults?
- Contagion Between Markets – Debt and Equity
- Maturity Schedule On Private and Public Debt
- Financial Institutions Systemic Risk
- U.S. Municipal Bond & Federal Government Default Risk
- Uncertainties (non-quantifiable)

Historical Default Rates

Straight Bonds Only Excluding Defaulted Issues From Par Value Outstanding, (US\$ millions)
1971 – 2012 (1/19)

Year	Par Value Outstanding*	Par Value Defaults	Default Rates (%)	Year	Par Value Outstanding ^a	Par Value Defaults	Default Rates (%)		
2012 (1/19)	\$1,323,434	\$1,013	0.077%	1984	\$40,939	\$344	0.840		
2011* *	\$1,354,649	\$17,813	1.315	1983	\$27,492	\$301	1.095		
2010	\$1,221,569	\$13,809	1.130	1982	\$18,109	\$577	3.186		
2009	\$1,152,952	\$124,130	10.766	1981	\$17,115	\$27	0.158		
2008	\$1,091,000	\$50,763	4.653	1980	\$14,935	\$224	1.500		
2007	\$1,075,400	\$5,473	0.509	1979	\$10,356	\$20	0.193		
2006	\$993,600	\$7,559	0.761	1978	\$8,946	\$119	1.330		
2005	\$1,073,000	\$36,181	3.372	1977	\$8,157	\$381	4.671		
2004	\$933,100	\$11,657	1.249	1976	\$7,735	\$30	0.388		
2003	\$825,000	\$38,451	4.661	1975	\$7,471	\$204	2.731		
2002	\$757,000	\$96,855	12.795	1974	\$10,894	\$123	1.129		
2001	\$649,000	\$63,609	9.801	1973	\$7,824	\$49	0.626		
2000	\$597,200	\$30,295	5.073	1972	\$6,928	\$193	2.786		
1999	\$567,400	\$23,532	4.147	1971	\$6,602	\$82	1.242		
1998	\$465,500	\$7,464	1.603	Standard Deviation (%)					
1997	\$335,400	\$4,200	1.252						
1996	\$271,000	\$3,336	1.231	Arithmetic Average Default Rate					
1995	\$240,000	\$4,551	1.896						
1994	\$235,000	\$3,418	1.454	1971 to 2011				3.229%	3.177%
1993	\$206,907	\$2,287	1.105	1978 to 2011				3.494%	3.369%
1992	\$163,000	\$5,545	3.402	1985 to 2011				4.093%	3.510%
1991	\$183,600	\$18,862	10.273	Weighted Average Default Rate*					
1990	\$181,000	\$18,354	10.140						
1989	\$189,258	\$8,110	4.285	1971 to 2011				3.994%	
1988	\$148,187	\$3,944	2.662	1978 to 2011				4.001%	
1987	\$129,557	\$7,486	5.778	1985 to 2011				4.027%	
1986	\$90,243	\$3,156	3.497	Median Annual Default Rate					
1985	\$58,088	\$992	1.708						
				1971 to 2011				1.708%	

Major Risks Going Forward (For 2012)

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A Novel Approach to Assessing Sovereign Debt Risk

Financial Health of the Corporate, Non-Financial Sector: Selected European Countries and U.S.A. in 2008-2010

(Z-Metrics PD Estimates¹ and Implied PDs from CDS Spreads)

	Z-Metrics PD Estimates: Five-Year Public Model						
	Listed Companies	Y/E 2010 Median PD	Y/E 2009 Median PD	Y/E 2008 Median PD	Five-Year Implied PD From CDS Spread ²		
Country					2010	2009	2008
Netherlands	85	3.56%	3.33%	5.62%	2.03%	2.83%	6.06%
U.S.A.	2226	3.65%	3.93%	6.97%	3.79%	3.28%	4.47%
Sweden	245	3.71%	5.31%	6.74%	2.25%	4.60%	6.33%
Ireland	29	3.72%	6.45%	7.46%	41.44%	12.20%	17.00%
Belgium	69	3.85%	5.90%	5.89%	11.12%	4.58%	5.53%
U.K.	507	4.28%	3.62%	5.75%	4.73%	6.52%	8.13%
France	351	4.36%	5.51%	7.22%	4.51%	3.75%	4.05%
Germany	348	4.63%	5.54%	7.34%	2.50%	2.67%	3.66%
Italy	174	7.29%	7.99%	10.51%	9.16%	8.69%	11.20%
Spain	91	7.39%	6.44%	7.39%	14.80%	9.39%	8.07%
Portugal	33	10.67%	9.36%	12.07%	41.00%	10.90%	7.39%
Greece	93	15.28%	10.60%	11.57%	70.66%	24.10%	13.22%

¹Since the Z-Metrics Model is not practically available for most analysts, we could substitute the Z"-Score method (available from <altmanZscoreclassic.com>).

²Assuming a 40% recovery rate (R); based on the median CDS spread (s). PD Computed as $1 - e^{(-5*s/(1-R))}$

Sources: RiskMetrics Group (MSCI), Markit, Compustat.

Weighted Average Median 5-Year PD From Z-Metrics Models¹ for Listed Non-Financial² and Banking³ Firms (Europe & US): 2010

Country	Non-Financial Firms		Banking Firms		Weighted Average (%)	Rank	CDS Spread PD (%)*	Rank
	PD (%)	Weight	PD (%)	Weight				
Netherlands	3.56	0.977	11.1	0.023	3.73	1	2.03	1
U.K.	4.28	0.977	15.5	0.023	4.54	5	4.73	6
U.S.A.	3.65	0.837	13.8	0.163	5.30	7	3.79	4
France	4.36	0.986	14.0	0.014	4.49	4	4.51	5
Germany	4.63	0.983	13.1	0.017	4.77	6	2.50	3
Sweden	3.71	0.984	17.3	0.016	3.93	2	2.25	2
Ireland	3.72	0.906	77.6	0.094	10.65	10	41.44	11
Italy	7.29	0.906	20.0	0.094	8.48	9	9.16	7
Belgium	3.85	0.972	12.4	0.028	4.21	3	11.12	8
Spain	7.39	0.948	10.9	0.052	7.57	8	14.80	9
Portugal	10.67	0.971	12.1	0.029	10.71	11	41.00	10
Greece	15.28	0.921	30.1	0.079	16.45	12	70.66	12

¹Since the Z-Metrics Model is not practically available for most analysts, we could substitute the Z"-Score method (available from <altmanZscoreclassic.com>).

²Based on Z-Metrics Default Probability Model.

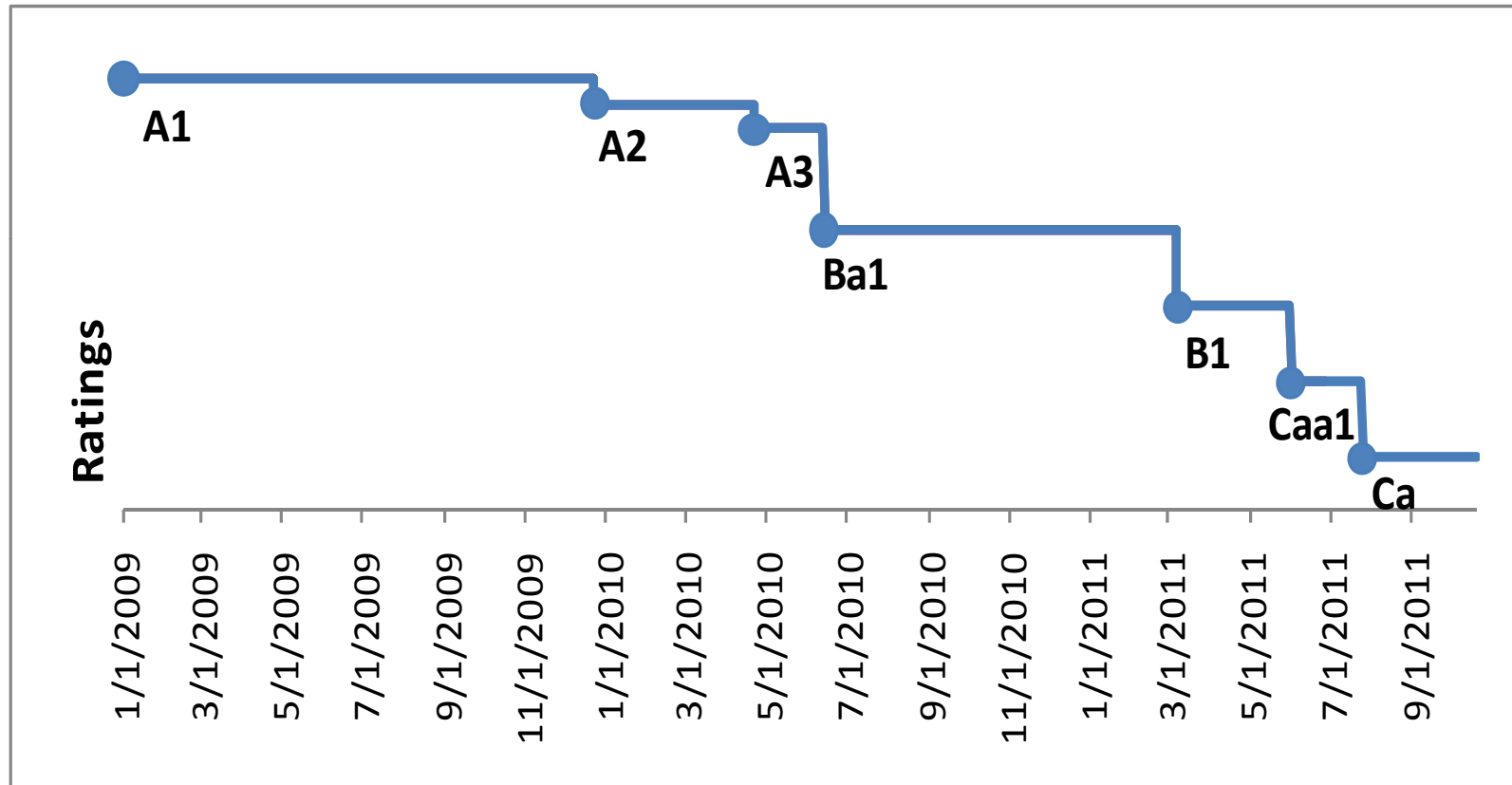
³Based on Altman-Rijken Model (Preliminary)

* PD based on CDS Spread as of 4/26/2011

Sovereign Ratings Actions (Moody's)

2009 - Present

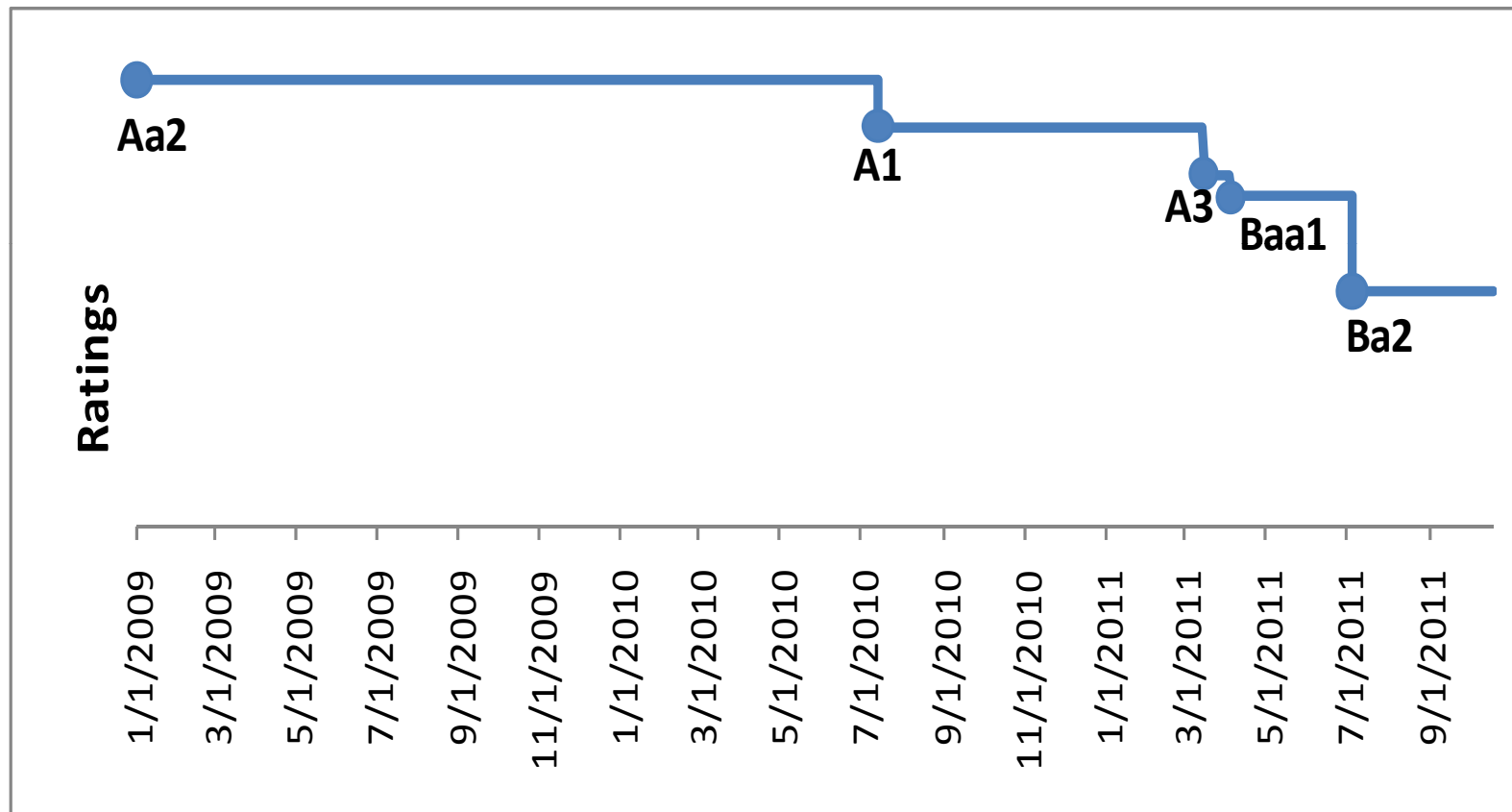
Greece



Sovereign Ratings Actions (Moody's)

2009 - Present

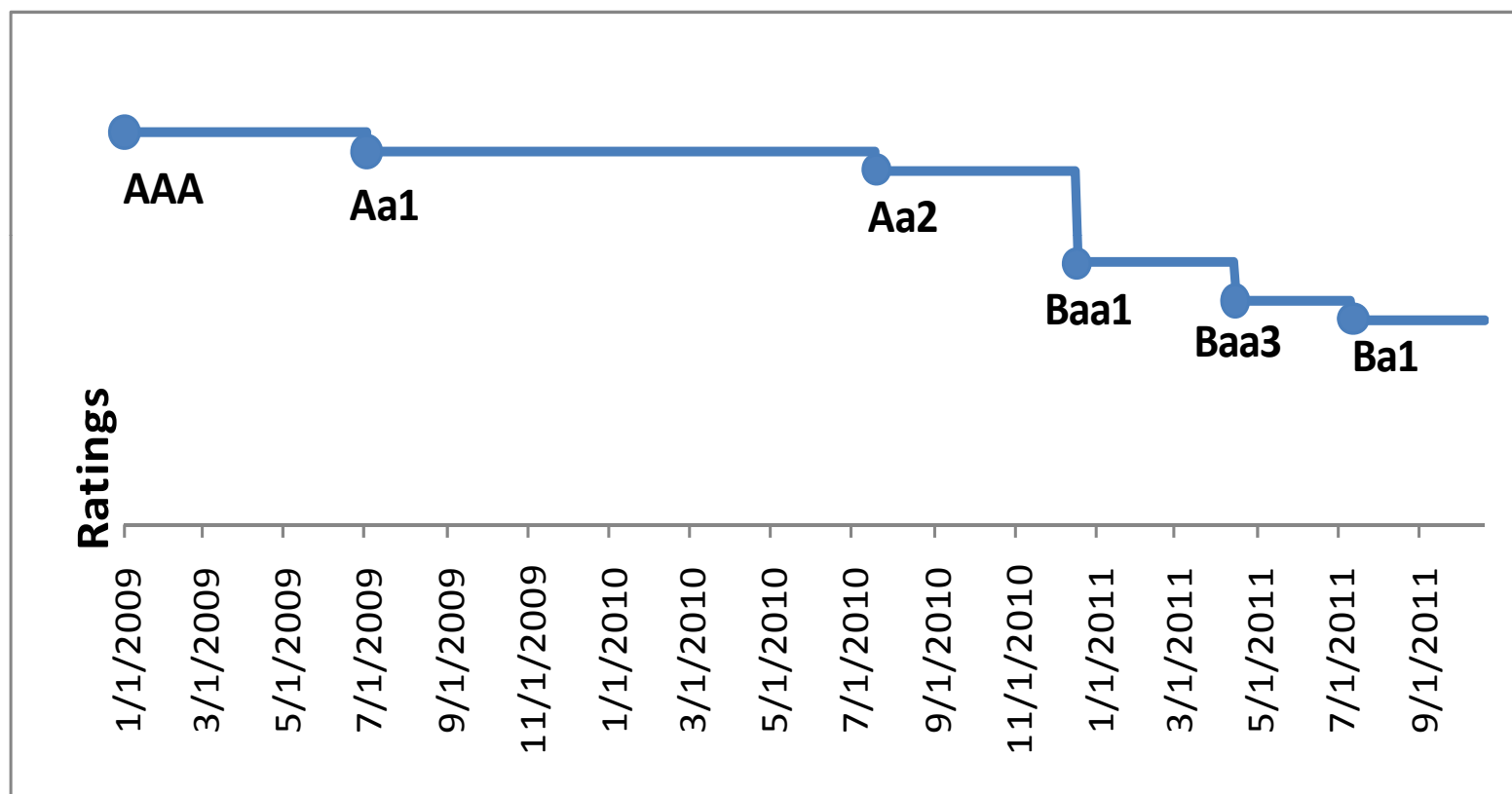
Portugal



Sovereign Ratings Actions (Moody's)

2009 - Present

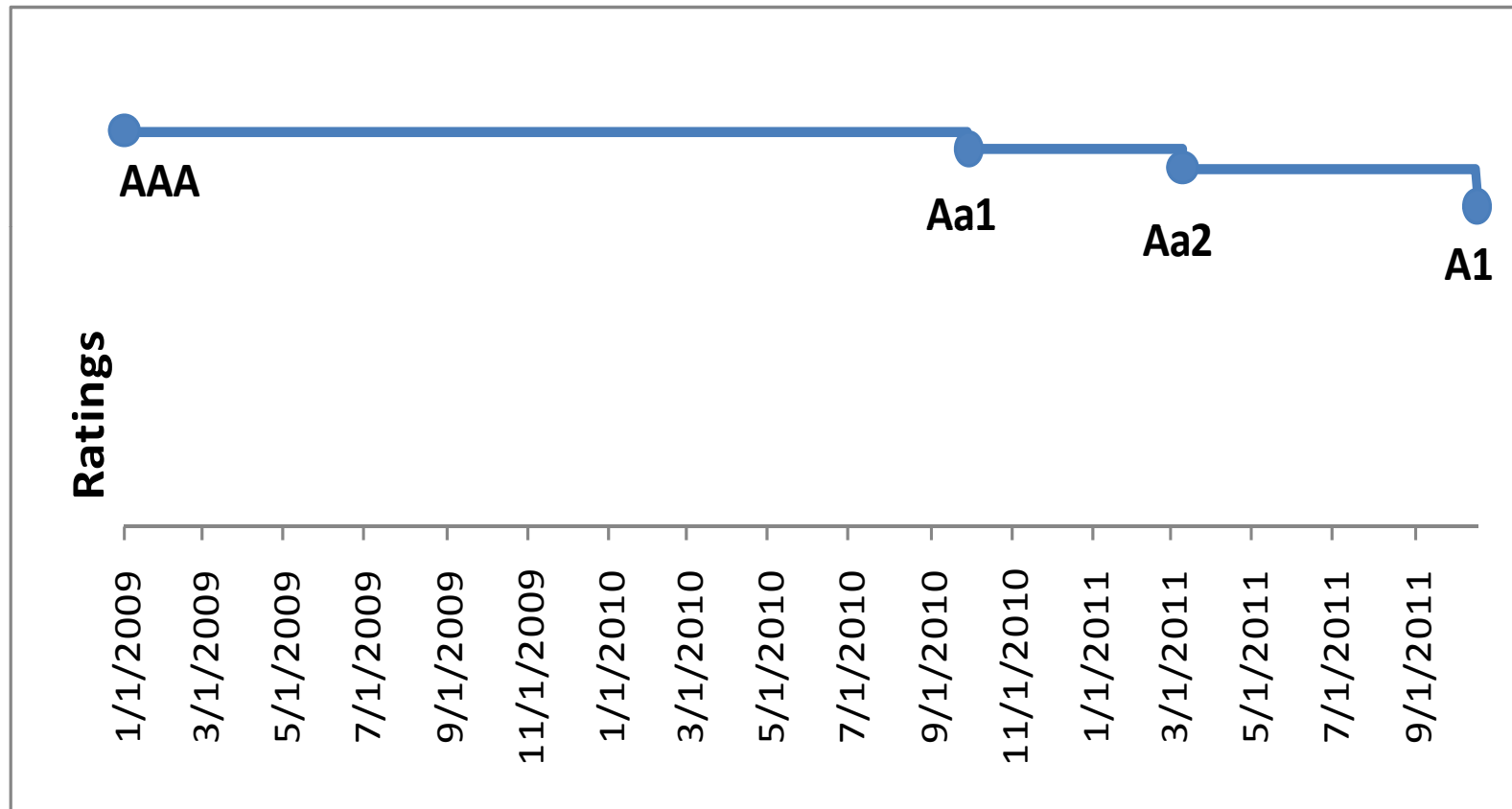
Ireland



Sovereign Ratings Actions (Moody's)

2009 - Present

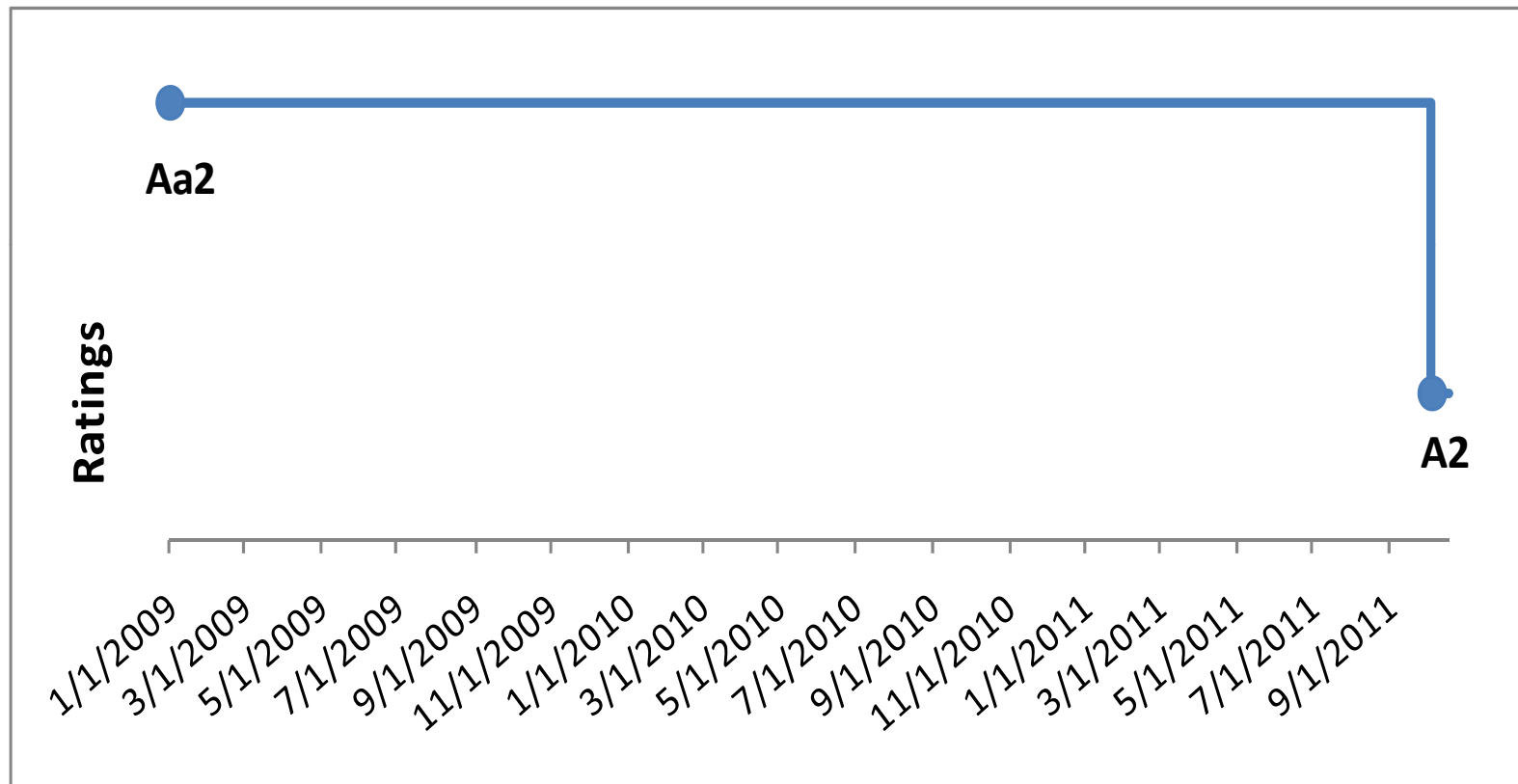
Spain



Sovereign Ratings Actions (Moody's)

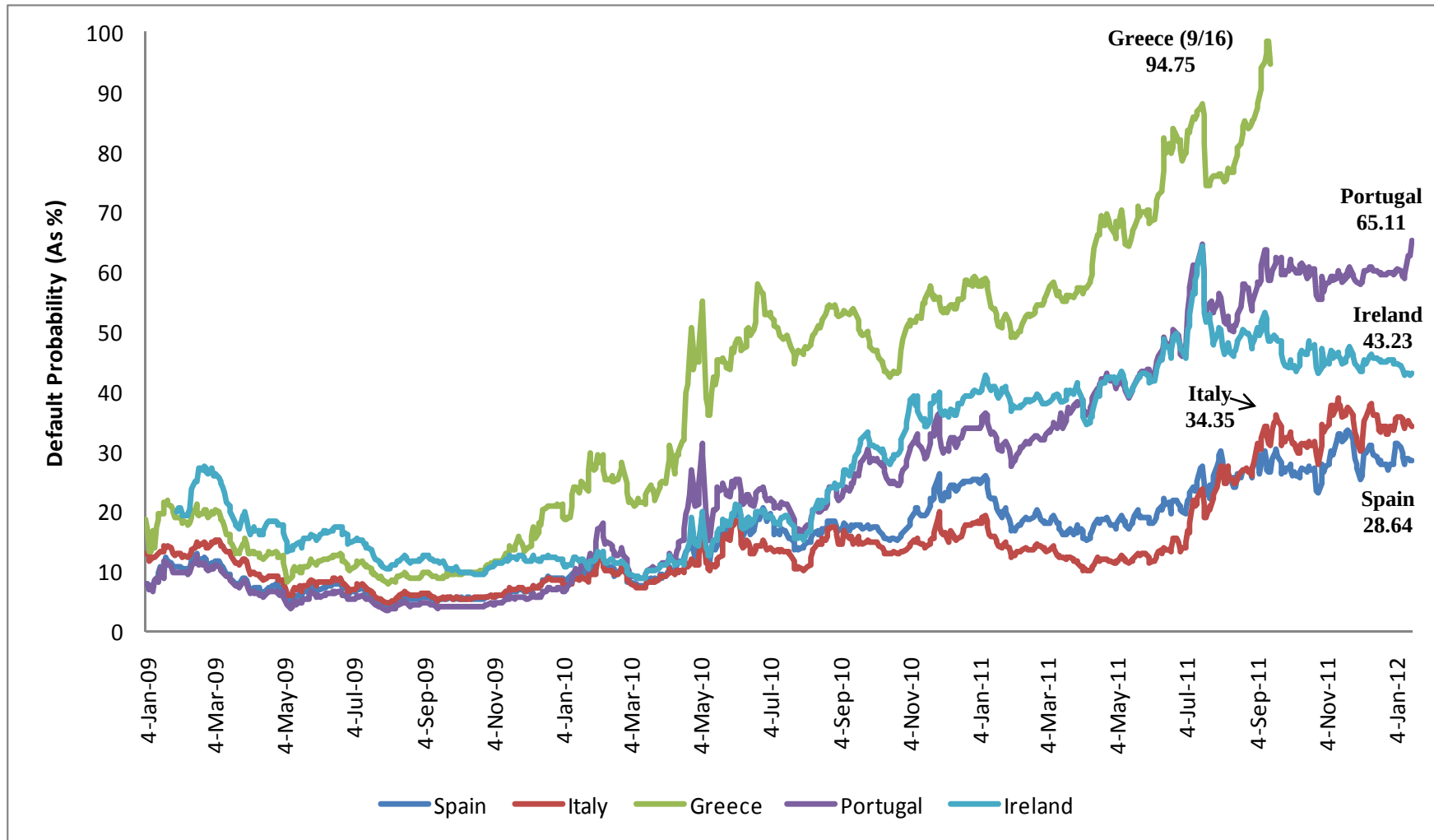
2009 - Present

Italy



Five Year Implied Probabilities of Default (PD) From Capital Market CDS Spreads*

Jan. 2009 – January 18, 2012



*Assumes 40% Recovery Rate.

Source: Bloomberg

Altman Z-Score +

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analysis delivered on the spot!



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with Professor Altman to:

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- Manage accounts receivables more effectively
- Select corporate equity and debt securities
- Identify and manage corporate defaults or turnarounds

What is Altman Z-Score+ ?

Altman Z-Score+ is a Smartphone & Web app that provides

- Credit Risk assessment and
- Probability of Default

of companies globally utilizing well tested Altman Z-Score family of models

What Platforms the App is available?

- Four Mobile & Web Platforms
 - Three mobile Operating Systems
 - Google Android
 - Research In Motion (RIM) BlackBerry
 - Apple iOS
 - iPhone, iPad and iTouch
 - Web