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**APPENDIX**

**Table 1 Companies with Rated by S&P**

The table is based on a panel companies covering the eleven years from 1997 through 2007. Reuters are the sources for the data on this panel of companies. Panel A gives the number of issuer ratings by S&P, and Panel B gives the percentage break down by year.

Year	Rating								Total
	AAA	AA	A	BBB	BB	B	CCC/CC	NR	
<b>Panel A: Number</b>									
1997	10	22	26	15	7	1	0	0	81
1998	8	43	37	25	9	2	0	1	125
1999	7	43	53	37	8	2	0	2	152
2000	8	57	88	57	18	1	0	3	232
2001	7	58	108	89	20	4	1	1	288
2002	7	52	116	108	29	7	2	2	323
2003	6	61	152	171	64	15	5	67	541
2004	3	70	172	211	74	30	3	1	564
2005	3	71	204	200	78	24	4	10	594
2006	3	77	203	212	82	28	3	6	614
2007	3	72	165	168	68	29	5	110	620
Total	65	626	1324	1293	457	143	23	203	4134
<b>Panel B: Percentage</b>									
1997	12.3	27.2	32.1	18.5	8.6	1.2	0.0	0.0	100
1998	6.4	34.4	29.6	20.0	7.2	1.6	0.0	0.8	100
1999	4.6	28.3	34.9	24.3	5.3	1.3	0.0	1.3	100
2000	3.4	24.6	37.9	24.6	7.8	0.4	0.0	1.3	100
2001	2.4	20.1	37.5	30.9	6.9	1.4	0.3	0.3	100
2002	2.2	16.1	35.9	33.4	9.0	2.2	0.6	0.6	100
2003	1.1	11.3	28.1	31.6	11.8	2.8	0.9	12.4	100
2004	0.5	12.4	30.5	37.4	13.1	5.3	0.5	0.2	100
2005	0.5	12.0	34.3	33.7	13.1	4.0	0.7	1.7	100
2006	0.5	12.5	33.1	34.5	13.4	4.6	0.5	1.0	100
2007	0.5	11.6	26.6	27.1	11.0	4.7	0.8	17.7	100

**Table 2 Descriptive Statistics**

The table presents descriptive panel data statistics for the model variables. The dataset consists of 4,134 observations from the period 1997-2007 of six countries.

	N	NI/TA	NI/MTA	TL/TA	TL/MTA	Dif-Ret	Rel-Size	Sigma	CA/TA	MB	Price
<b>Statistics for all entire data set</b>											
Mean	4134	0.0326	0.0296	0.6189	0.5988	0.0030	1.4672	0.3376	0.3781	3.1636	2.3266
Median	4134	0.0292	0.0252	0.6231	0.5874	0.0150	1.5192	0.3053	0.3316	1.7300	2.5055
Maximum	4134	0.9648	1.6782	2.5637	1.0000	0.6865	4.2950	1.7531	16.5926	1204.0900	6.0804
Minimum	4134	-0.8905	-1.0507	0.0346	0.0153	-2.5071	-3.0183	0.0000	0.0152	-326.3200	-0.2855
S.D.	4134	0.0691	0.0825	0.2096	0.2803	0.1691	1.2609	0.1506	0.4356	34.1359	1.0254
Skewness	4134	-1.0757	3.1338	1.0493	-0.0150	-2.8814	-0.4529	2.4646	21.8804	29.5642	0.4051
Kurtosis	4134	40.4242	97.7979	11.8402	1.9129	31.9067	2.6718	15.6815	734.7173	1063.8860	3.5502
<b>Mean statistic per rating class</b>											
AAA	65	0.0989	0.1063	0.5620	0.5997	0.0625	1.8442	0.3066	0.3274	4.4829	2.3293
AA+	64	0.0761	0.0371	0.5270	0.3236	0.0461	2.4466	0.3110	0.2192	3.3317	3.0460
AA	169	0.0721	0.0441	0.5799	0.4349	0.0240	1.8478	0.2989	0.3038	3.1555	2.7650
AA-	393	0.0356	0.0232	0.6147	0.4901	0.0066	2.1719	0.2916	0.2312	2.5346	3.0737
A+	346	0.0515	0.0360	0.5786	0.4550	0.0129	1.8163	0.2913	0.2881	2.9581	2.5908
A	435	0.0413	0.0333	0.5393	0.4832	0.0159	1.7744	0.3167	0.3209	11.6814	2.6070
A-	543	0.0424	0.0407	0.5782	0.5511	0.0078	1.6932	0.3156	0.3508	2.3754	2.4342
BBB+	526	0.0328	0.0338	0.6004	0.6336	0.0074	1.2533	0.3181	0.4055	2.1337	2.1381
BBB	496	0.0387	0.0390	0.6499	0.6363	0.0161	1.3690	0.3285	0.3784	2.4339	2.1874
BBB-	271	0.0245	0.0220	0.6775	0.6367	-0.0004	1.3770	0.3559	0.4093	-0.9947	2.1851
BB+	201	0.0070	0.0210	0.7069	0.7657	-0.0186	1.2493	0.3740	0.4431	4.1486	2.0724
BB	137	0.0117	0.0237	0.7018	0.7910	-0.0216	0.5761	0.4179	0.5368	2.3874	1.6614
BB-	119	0.0074	0.0062	0.6987	0.7415	-0.0030	0.6954	0.3857	0.4321	1.8349	1.8005
B+	78	-0.0012	0.0283	0.6976	0.9138	-0.0416	0.1943	0.4691	0.7081	1.4576	1.2304
B	42	-0.0443	-0.0430	0.7310	0.8618	-0.0715	-0.0480	0.5154	0.4599	1.5809	1.2508
B-	23	-0.0543	-0.0638	0.8203	0.8718	-0.1411	0.4379	0.5483	0.5492	1.5726	1.4462
CCC/CC	23	-0.0717	-0.0876	0.7206	0.6839	-0.1243	0.8021	0.5722	0.3932	1.8547	2.0681
NR	203	0.0382	0.0270	0.5222	0.4689	0.0017	2.0024	0.3192	0.3824	3.1234	2.8726

**Table 2 continued**

	<b>N</b>	<b>CA/CL</b>	<b>WC/TA</b>	<b>EBIT/TA</b>	<b>ME/TL</b>	<b>Age</b>	<b>OPTMAR</b>	<b>LTD/TA</b>	<b>TD/TA</b>	<b>Beta</b>	<b>SE</b>
<b>Statistics for all entire data set</b>											
<b>Mean</b>	4134	1.4691	0.0832	0.0697	1.9200	5.1354	0.0200	0.2244	0.3073	0.8135	0.0178
<b>Median</b>	4134	1.1825	0.0566	0.0623	0.9920	3.0000	7.9100	0.1976	0.2976	0.8018	0.0161
<b>Maximum</b>	4134	33.5678	0.8489	0.9390	78.6123	107.0000	55.5700	1.4519	1.7144	3.7950	0.1182
<b>Minimum</b>	4134	0.0893	-0.6105	-0.8671	0.0142	1.0000	-129.1300	0.0000	0.0000	-0.4451	0.0042
<b>S.D.</b>	4134	1.3066	0.1742	0.0814	3.6767	7.4904	468.7800	0.1660	0.1863	0.4479	0.0082
<b>Skewness</b>	4134	8.0263	0.7873	0.1427	9.3162	7.0433	-51.9146	1.2187	0.8484	0.7171	2.5930
<b>Kurtosis</b>	4134	143.9182	4.3998	21.0460	141.5023	84.6033	2748.3230	6.4956	5.9473	5.1565	17.4673
<b>Mean statistic per rating class</b>											
<b>AAA</b>	65	1.1243	0.0386	0.1587	2.7840	11.9355	11.8610	0.1057	0.1631	0.7895	0.0145
<b>AA+</b>	64	1.2907	0.0814	0.1202	3.2283	9.8333	14.5091	0.1124	0.1782	0.8801	0.0149
<b>AA</b>	169	1.5900	0.1253	0.1332	2.3477	7.3366	14.5655	0.1729	0.2397	0.6756	0.0143
<b>AA-</b>	393	1.2206	0.0592	0.0716	1.8305	6.8768	10.8674	0.2436	0.3194	0.6010	0.0156
<b>A+</b>	346	1.6415	0.0776	0.0921	2.6417	6.9148	12.3302	0.1764	0.2634	0.8197	0.0148
<b>A</b>	435	1.7839	0.0904	0.0794	3.2314	5.3926	12.8659	0.1769	0.2443	0.7547	0.0166
<b>A-</b>	543	1.4842	0.0940	0.0774	2.2511	4.7588	11.5449	0.1756	0.2568	0.8701	0.0162
<b>BBB+</b>	526	1.3295	0.0743	0.0668	1.4111	4.4973	-68.4392	0.2151	0.2922	0.8452	0.0164
<b>BBB</b>	496	1.2714	0.0628	0.0801	1.3212	5.9900	9.9888	0.2328	0.3169	0.7969	0.0172
<b>BBB-</b>	271	1.3894	0.0740	0.0573	1.2405	4.1031	7.8585	0.2622	0.3592	0.9282	0.0181
<b>BB+</b>	201	1.1728	0.0498	0.0376	1.2123	3.4511	8.1763	0.2924	0.3882	0.9221	0.0192
<b>BB</b>	137	1.5505	0.1089	0.0484	1.6345	3.9661	7.7597	0.3434	0.4242	0.7181	0.0224
<b>BB-</b>	119	1.3256	0.0761	0.0454	1.0224	3.5046	7.9949	0.3107	0.4095	0.7618	0.0210
<b>B+</b>	78	1.9467	0.0878	0.0289	1.0028	2.7179	7.9256	0.3235	0.4074	0.8206	0.0282
<b>B</b>	42	1.7469	0.0764	-0.0153	0.9043	3.7647	-2.1794	0.3509	0.4373	0.6926	0.0285
<b>B-</b>	23	1.6821	0.0954	-0.0150	0.8058	7.6957	2.2830	0.3865	0.4955	1.1296	0.0311
<b>CCC/CC</b>	23	1.9692	0.1997	-0.0288	3.5334	3.5789	1.2311	0.3592	0.4192	0.9592	0.0344
<b>NR</b>	203	1.9582	0.1534	0.0690	3.3024	3.4457	8.1192	0.1382	0.2378	0.8826	0.0179

**Table 3 Parameter Estimates for Static and Hazard Rate Models of Investment Rating**

The table presents the parameter estimations for static and hazard rate models. The dependent binary variable in both models estimation is 0 for the non-change rating observations and 1 for all changed observations. The standard errors are a generalized version of the Huber and White standard errors, which relaxes the assumptions concerning the distribution of error terms and independence among observations of the same firm. The z-statistics are given in brackets. \*\*\* significant at 1%, \*\* significant at 5%, \* significant at 10%

<b>Panel A: Static Model for Upgrades</b>					
	<b>Altman</b>	<b>Blume</b>	<b>Campbell</b>	<b>Shumway</b>	<b>Zmijewski</b>
WC/TA	-1.2548 (-1.35)				
EBIT/TA	0.5374 (0.21)				
ME/TL	-0.0072 (-0.18)				
Age	0.0148 (1.69)*				
OPTMAR		0.0007 (0.86)			
LTD/TA		-1.1461 (-0.87)			
TD/TA		-2.5067 (-2.52)**			
Beta		-0.6984 (-2.76)***			
SE		-11.0425 (-0.62)			
NI/TA				0.7184 (0.29)	-0.5748 (-0.28)
NI/MTA			1.2650 (0.46)		
TL/TA				-1.4144 (-2.71)***	1.3690 (1.44)
TL/MTA			-0.4657 (-0.79)		
CA/MTA			0.2191 (0.47)		
Dif-Ret			3.6043 (3.44)***	3.3285 (4.02)***	
Rel-Size			0.6203 (2.65)***	0.1512 (1.33)	
Sigma			-0.4783 (-0.42)	-0.5705 (-0.60)	
MB			0.0037 (3.42)***		
Price			0.8208 (2.53)**		
CA/CL					-0.1641 (-0.91)
C	-1.5846 (-7.73)***	-2.9158 (-6.83)***	-0.7648 (-0.80)	-3.1312 (-5.28)***	-2.2160 (-2.79)***

Panel A displays model estimated by Static Model of firms which upgrade and have investment ratings



Panel B: Hazard Rate Model for Upgrades					
	Altman	Blume	Campbell	Shumway	Zmijewski
WC/TA	0.3323 (0.46)				
EBIT/TA	-0.7928 (-0.35)				
ME/TL	-0.0529 (-1.18)				
Age	0.0089 (1.39)				
OPTMAR		-0.0002 (-0.57)			
LTD/TA		-1.1228 (-1.24)			
TD/TA		-2.4831 (-3.66)***			
Beta		-0.9702 (-5.22)***			
SE		-12.9644 (-0.93)			
NI/TA				-0.0807 (-0.03)	-1.9436 (-1.25)
NI/MTA			1.3774 (0.77)		
TL/TA				-0.8184 (-2.19)**	-1.0278 (-2.16)**
TL/MTA			-0.0012 (0.00)		
CA/MTA			0.5464 (1.62)		
Dif-Ret			2.6868 (4.36)***	2.6666 (4.87)***	
Rel-Size			0.7767 (4.89)***	0.8994 (1.17)	
Sigma			-0.7971 (-0.87)	-0.4587 (-4.80)***	
MB			0.0047 (5.64)***		
Price			0.4580 (2.50)**		
CA/CL					-0.0570 (-0.58)
C	-2.1271 (-12.37)***	-3.8776 (-10.82)***	-3.0646 (-4.63)***	-4.0187 (-8.29)***	-2.7198 (-6.86)***

Panel B displays model estimated by Hazard Rate Model of firms which upgrade and have investment ratings

Panel C: Static Model for Downgrades					
	Altman	Blume	Campbell	Shumway	Zmijewski
WC/TA	-2.1280 (-3.68)***				
EBIT/TA	-5.2837 (-3.77)***				
ME/TL	0.0088 (0.50)				
Age	0.0155 (1.94)**				
OPTMAR		0.0001 (1.50)			
LTD/TA		0.2465 (0.34)			
TD/TA		0.7143 (1.23)			
Beta		0.3552 (2.40)**			
SE		26.0638 (2.71)***			
NI/TA				-4.9898 (-3.03)***	-5.9797 (-3.26)***
NI/MTA			-5.4388 (-2.74)***		
TL/TA				1.1908 (3.57)***	1.3728 (2.86)***
TL/MTA			0.5244 (1.81)*		
CA/MTA			-0.1241 (-0.50)		
Dif-Ret			-0.4319 (-1.42)	-0.5703 (-1.89)**	
Rel-Size			0.0739 (0.76)	0.0068 (0.11)	
Sigma			2.7935 (5.05)***	2.6787 (5.37)***	
MB			0.0051 (0.67)		
Price			-0.1897 (-1.44)		
CA/CL					-0.2047 (-1.39)
C	-0.9759 (-7.45)***	-2.3252 (-9.07)***	-2.1197 (-5.04)***	-2.9373 (-8.25)***	-1.7464 (-4.19)***

Panel C displays model estimated by Static Model of firms which downgrade and have investment ratings

Panel D: Hazard Rate Model for Downgrades					
	Altman	Blume	Campbell	Shumway	Zmijewski
WC/TA	-2.3955 (-4.96)***				
EBIT/TA	-4.3253 (-3.98)***				
ME/TL	0.0169 (1.25)				
Age	0.0089 (1.57)				
OPTMAR		0.0001 (0.98)			
LTD/TA		-0.0404 (-0.07)			
TD/TA		0.6489 (1.40)			
Beta		0.2280 (1.95)*			
SE		36.4856 (4.65)***			
NI/TA				-3.2994 (-2.90)***	-4.4337 (-2.90)***
NI/MTA			-5.9059 (-3.65)***		
TL/TA				0.9182 (3.81)***	0.9481 (2.63)***
TL/MTA			0.1981 (0.88)		
CA/MTA			-0.1131 (-0.60)		
Dif-Ret			-0.1979 (-0.72)	-0.3328 (-1.22)	
Rel-Size			0.0279 (0.38)	0.0780 (1.64)	
Sigma			2.2230 (5.37)***	2.3452 (6.11)***	
MB			-0.0019 (-2.27)**		
Price			0.0112 (0.12)		
CA/CL					-0.2589 (-1.83)*
C	-0.9720 (-9.24)***	-2.3175 (-11.29)***	-1.9845 (-6.36)***	-2.7104 (-10.49)***	-1.4189 (-4.38)***

Panel D displays model estimated by Hazard Rate Model of firms which downgrade and have investment ratings

**Table 4 Parameter Estimates for Static and Hazard Rate Models of Non-Investment Rating**

The table presents the parameter estimations for static and hazard rate models. The dependent binary variable in both models estimation is 0 for the non-change rating observations and 1 for all changed observations. The standard errors are a generalized version of the Huber and White standard errors, which relaxes the assumptions concerning the distribution of error terms and independence among observations of the same firm. The z-statistics are given in brackets. \*\*\* significant at 1%, \*\* significant at 5%, \* significant at 10%

Panel A: Static Model for Upgrades					
	Altman	Blume	Campbell	Shumway	Zmijewski
WC/TA	0.8155 (0.59)				
EBIT/TA	3.6943 (1.50)				
ME/TL	0.0528 (0.78)				
Age	0.0473 (0.65)				
OPTMAR		0.0276 (1.27)			
LTD/TA		0.7177 (0.27)			
TD/TA		0.9162 (0.37)			
Beta		0.2925 (0.66)			
SE		-41.5441 (-2.16)**			
NI/TA				3.2494 (1.27)	3.3794 (1.24)
NI/MTA			2.3110 (1.83)*		
TL/TA				-2.3882 (-1.20)	-2.5825 (-1.56)
TL/MTA			-4.6000 (-1.74)*		
CA/MTA			1.3324 (1.90)*		
Dif-Ret			0.7726 (0.28)	0.0340 (0.03)	
Rel-Size			0.9062 (1.12)	-0.1884 (-0.93)	
Sigma			1.4390 (0.70)	1.7199 (1.13)	
MB			-0.5497 (-1.53)		
Price			2.4732 (1.70)*		
CA/CL					0.9380 (2.62)***
C	-1.3515 (-3.83)***	-3.2541 (-3.30)***	5.6454 (1.38)	-3.3316 (-1.91)*	-4.1597 (-2.67)***

Panel A displays model estimated by Static Model of firms which upgrade and have non- investment ratings

Panel B: Hazard Rate Model for Upgrades					
	Altman	Blume	Campbell	Shumway	Zmijewski
WC/TA	-0.3320 (-0.39)				
EBIT/TA	4.0210 (1.17)*				
ME/TL	0.0154 (0.13)				
Age	-0.0480 (-1.01)				
OPTMAR		0.0330 (1.80)*			
LTD/TA		-3.4647 (-1.92)*			
TD/TA		-4.9305 (-2.87)***			
Beta		0.4217 (1.52)			
SE		-8.3231 (-0.46)			
NI/TA				3.5069 (1.26)	4.7598 (2.16)**
NI/MTA			1.3263 (0.78)		
TL/TA				-1.1902 (-1.00)	-1.0373 (-1.12)
TL/MTA			-0.1602 (-0.10)		
CA/MTA			0.8024 (1.64)		
Dif-Ret			2.1291 (1.95)*	2.2147 (2.16)**	
Rel-Size			0.5901 (1.96)**	-0.2225 (-0.19)	
Sigma			-0.9271 (-0.55)	0.1208 (0.78)	
MB			-0.2409 (-2.85)***		
Price			-1.1200 (-2.23)**		
CA/CL					0.2352 (1.64)
C	-1.8889 (-7.06)***	-3.8249 (-4.68)***	-0.1098 (-0.06)	-2.8333 (-2.67)***	-2.9737 (-4.02)***

Panel B displays model estimated by Hazard Rate Model of firms which upgrade and have non-investment ratings

Panel C: Static Model for Downgrades					
	Altman	Blume	Campbell	Shumway	Zmijewski
WC/TA	-2.3809 (-2.03)**				
EBIT/TA	-2.1040 (-1.11)				
ME/TL	0.0230 (0.25)				
Age	0.1321 (2.41)**				
OPTMAR		-0.0196 (-1.57)			
LTD/TA		-1.8742 (-0.89)			
TD/TA		1.4956 (0.68)			
Beta		0.4453 (1.55)			
SE		-6.8875 (-0.49)			
NI/TA				0.0889 (0.06)	-1.1587 (-0.95)
NI/MTA			0.6946 (0.69)		
TL/TA				1.8080 (1.83)*	1.1565 (1.25)
TL/MTA			-1.7394 (-1.13)		
CA/MTA			-0.1455 (-0.23)		
Dif-Ret			-1.3340 (-1.29)	-0.3886 (-0.54)	
Rel-Size			0.3060 (1.05)	0.2161 (1.28)	
Sigma			0.6507 (0.66)	-0.2291 (-0.27)	
MB			-0.0465 (-0.88)		
Price			-0.4169 (-0.81)		
CA/CL					-0.0128 (-0.06)
C	-0.2554 (-0.82)	0.0717 (0.11)	1.8292 (1.01)	-1.3275 (-1.63)	-0.7918 (-0.96)

Panel C displays model estimated by Static Model of firms which downgrade and have non-investment ratings

Panel D: Hazard Rate Model for Downgrades					
	Altman	Blume	Campbell	Shumway	Zmijewski
WC/TA	-1.9400 (-1.99)**				
EBIT/TA	-3.0471 (-1.74)*				
ME/TL	-0.0054 (-0.10)				
Age	0.1463 (3.32)***				
OPTMAR		-0.0230 (-2.04)**			
LTD/TA		-1.5576 (-0.89)			
TD/TA		0.3961 (0.22)			
Beta		0.6211 (2.40)*			
SE		1.4837 (0.12)			
NI/TA				-1.0915 (-0.72)	-2.3459 (-1.77)*
NI/MTA			-0.1873 (-0.21)		
TL/TA				1.9548 (2.45)**	1.5794 (2.00)**
TL/MTA			0.0408 (0.04)		
CA/MTA			-0.4500 (-0.94)		
Dif-Ret			-0.3584 (-0.51)	0.2735 (0.47)	
Rel-Size			-0.1786 (-0.73)	0.0589 (0.40)	
Sigma			0.1974 (0.19)	-0.1806 (-0.23)	
MB			-0.0573 (-1.11)		
Price			0.4337 (0.96)		
CA/CL					-0.0371 (-0.20)*
C	-1.1334 (-4.75)***	-0.7809 (-1.35)	-1.1858 (-0.89)	-2.2126 (-3.05)***	-1.9477 (-2.68)***

Panel D displays model estimated by Hazard Rate Model of firms which downgrade and have non-investment ratings

**Table 5 Results for Area under the ROC Curve, Standard Error, and 95% Confidence Intervals for Investment Rated Companies**

The table shows the results for  $\hat{A}$ ,  $\hat{\sigma}$ , 95% confidence intervals for static and hazard models. Panel A displays the upgrades and Panel B displays the downgrades.

Model		$\hat{A}$	$\hat{\sigma}$	95% CI
<b>Panel A : Investment Ratings Upgrade</b>				
Altman	Static	0.541	0.0284	(0.511,0.572)
	Hazard	0.572	0.0286	(0.542,0.602)
Blume	Static	0.631	0.0227	(0.605,0.656)
	Hazard	0.646	0.0226	(0.620,0.671)
Campbell	Static	0.577	0.0230	(0.550,0.604)
	Hazard	0.615	0.0230	(0.588,0.641)
Shumway	Static	0.655	0.0226	(0.630,0.680)
	Hazard	0.681	0.0223	(0.656,0.706)
Zmijewski	Static	0.620	0.0299	(0.590,0.650)
	Hazard	0.636	0.0298	(0.606,0.666)
<b>Panel B : Investment Ratings Downgrade</b>				
Altman	Static	0.546	0.0367	(0.516,0.577)
	Hazard	0.554	0.0368	(0.523,0.584)
Blume	Static	0.560	0.0319	(0.534,0.586)
	Hazard	0.564	0.0318	(0.537,0.590)
Campbell	Static	0.507	0.0342	(0.480,0.534)
	Hazard	0.580	0.0321	(0.553,0.607)
Shumway	Static	0.551	0.0324	(0.524,0.577)
	Hazard	0.596	0.0310	(0.570,0.622)
Zmijewski	Static	0.540	0.0362	(0.509,0.571)
	Hazard	0.547	0.0363	(0.516,0.578)



**Table 6 Results for Area under the ROC Curve, Standard Error, and 95% Confidence Intervals for Non-Investment Rated Companies**

The table shows the results for  $\hat{A}$ ,  $\hat{\sigma}$ , 95% confidence intervals for static and hazard models. Panel A displays the upgrades and Panel B displays the downgrades.

Model		$\hat{A}$	$\hat{\sigma}$	95% CI
<b>Panel A : Non-Investment Ratings Upgrade</b>				
Altman	Static	0.571	0.0416	(0.523,0.617)
	Hazard	0.611	0.0399	(0.564,0.656)
Blume	Static	0.565	0.0442	(0.518,0.610)
	Hazard	0.594	0.0444	(0.547,0.638)
Campbell	Static	0.633	0.0457	(0.586,0.679)
	Hazard	0.653	0.0454	(0.606,0.698)
Shumway	Static	0.589	0.0444	(0.542,0.634)
	Hazard	0.611	0.0444	(0.565,0.656)
Zmijewski	Static	0.505	0.0420	(0.458,0.551)
	Hazard	0.511	0.0424	(0.465,0.557)
<b>Panel B : Non-Investment Ratings Downgrade</b>				
Altman	Static	0.600	0.0267	(0.553,0.646)
	Hazard	0.602	0.0267	(0.555,0.648)
Blume	Static	0.533	0.0271	(0.487,0.579)
	Hazard	0.587	0.0269	(0.541,0.632)
Campbell	Static	0.667	0.0266	(0.621,0.712)
	Hazard	0.722	0.0251	(0.677,0.763)
Shumway	Static	0.542	0.0272	(0.495,0.589)
	Hazard	0.670	0.0250	(0.624,0.713)
Zmijewski	Static	0.683	0.0243	(0.638,0.724)
	Hazard	0.687	0.0241	(0.643,0.729)

**Table 7 Results of the Test for the Difference of the Areas below the ROC curve of Static and Hazard models**

The table reports the value of the test statistic Z, and the p-value of the test statistics of the two rating models that are compared.

<b>Panel A: Investment Ratings Upgrade</b>			
	<b>Difference between areas</b>	<b>z statistic</b>	<b>p-value</b>
Altman	0.03080	0.786	0.432
Blume	0.01560	2.722	0.006
Campbell	0.03750	2.222	0.026
Shumway	0.02600	1.160	0.246
Zmijewski	0.01580	1.756	0.079
<b>Panel B: Investment Ratings Downgrade</b>			
	<b>Difference between areas</b>	<b>z statistic</b>	<b>p-value</b>
Altman	0.00784	1.113	0.265
Blume	0.00363	0.339	0.734
Campbell	0.07300	3.654	< 0.001
Shumway	0.04490	4.279	< 0.001
Zmijewski	0.00705	1.306	0.192
<b>Panel C: Non-Investment Ratings Upgrade</b>			
	<b>Difference between areas</b>	<b>z statistic</b>	<b>p-value</b>
Altman	0.03980	0.844	0.398
Blume	0.02890	0.813	0.416
Campbell	0.01560	0.416	0.677
Shumway	0.02250	0.630	0.529
Zmijewski	0.00656	0.266	0.790
<b>Panel D: Non-Investment Ratings Downgrade</b>			
	<b>Difference between areas</b>	<b>z statistic</b>	<b>p-value</b>
Altman	0.00208	0.337	0.736
Blume	0.05370	4.690	< 0.001
Campbell	0.05830	2.052	0.040
Shumway	0.12700	7.696	< 0.001
Zmijewski	0.00478	2.053	0.040

**Table 8 Parameter Estimates for Static and Hazard Rate Models of Whole Sample**

The table presents the parameter estimations for static and hazard rate models. The dependent binary variable in both models estimation is 0 for the non-change rating observations and 1 for all changed observations. The standard errors are a generalized version of the Huber and White standard errors, which relaxes the assumptions concerning the distribution of error terms and independence among observations of the same firm. The z-statistics are given in brackets. \*\*\* significant at 1%, \*\* significant at 5%, \* significant at 10%

<b>Panel A: Static Model for Upgrades</b>					
	<b>Altman</b>	<b>Blume</b>	<b>Campbell</b>	<b>Shumway</b>	<b>Zmijewski</b>
WC/TA	-0.6707 (-0.90)				
EBIT/TA	1.5553 (0.75)				
ME/TL	-0.0107 (-0.25)				
Age	0.0120 (1.43)				
OPTMAR		0.0021 (0.26)			
LTD/TA		-0.4121 (-0.36)			
TD/TA		2.0353 (2.23)**			
Beta		-0.5630 (-2.56)**			
SE		-23.5369 (-1.19)**			
NI/TA				0.7947 (0.47)	0.3188 (0.21)
NI/MTA			1.4137 (1.43)		
TL/TA				-1.4659 (-3.02)***	-2.1716 (-2.31)**
TL/MTA			-0.4781 (-0.88)		
CA/MTA			0.3897 (1.12)		
Dif-Ret			2.6988 (2.99)***	2.5679 (3.47)***	
Rel-Size			0.5407 (2.62)***	0.0376 (0.40)	
Sigma			1.1103 (1.32)	1.0050 (1.39)	
MB			0.0030 (3.71)***		
Price			-0.9113 (-3.03)***		
CA/CL					0.1197 (-0.96)
C	-1.5426 (-8.97)***	-3.0378 (-8.25)***	-0.5680 (-0.68)	-3.0129 (-5.76)***	-3.0389 (-3.99)***

Panel A displays model estimated by Static Model of firms which upgrade

Panel B: Hazard Rate Model for Upgrades					
	Altman	Blume	Campbell	Shumway	Zmijewski
WC/TA	0.3293 (0.56)				
EBIT/TA	0.6167 (0.44)				
ME/TL	-0.0554 (-1.01)				
Age	0.0060 (0.93)				
OPTMAR		0.0002 (0.32)			
LTD/TA		-1.5409 (-2.02)**			
TD/TA		2.8065 (4.58)***			
Beta		-0.7650 (-5.01)***			
SE		-6.7039 (-0.69)			
NI/TA				0.4937 (0.27)	0.2151 (0.18)
NI/MTA			1.1833 (1.00)		
TL/TA				-0.7964 (-2.31)**	-1.0133 (-2.56)**
TL/MTA			0.0142 (0.04)		
CA/MTA			0.5614 (2.12)**		
Dif-Ret			2.3896 (4.39)***	2.4309 (4.93)***	
Rel-Size			0.6681 (4.91)***	0.3421 (4.38)***	
Sigma			0.8379 (1.14)	0.8129 (1.33)	
MB			0.0041 (6.84)***		
Price			-0.5100 (-2.97)***		
CA/CL					0.0266 (0.34)
C	-2.1320 (-15.88)***	-3.5878 (-13.47)***	-2.6557 (-4.61)	-3.6552 (-8.82)***	-2.8355 (-8.35)***

Panel B displays model estimated by Hazard Rate Model of firms which upgrade

Panel C: Static Model for Downgrades					
	Altman	Blume	Campbell	Shumway	Zmijewski
WC/TA	-1.7080 (-3.37)***				
EBIT/TA	-5.3789 (-4.06)***				
ME/TL	-0.0011 (-0.06)				
Age	0.0146 (1.89)**				
OPTMAR		0.0001 (1.23)			
LTD/TA		0.4471 (0.67)			
TD/TA		0.6998 (1.25)**			
Beta		0.4082 (3.25)***			
SE		29.2978 (4.09)***			
NI/TA				-2.6951 (-1.75)*	-4.9409 (-3.20)***
NI/MTA			-0.9868 (-0.60)		
TL/TA				1.2485 (4.00)***	1.6085 (3.57)**
TL/MTA			0.4856 (1.75)*		
CA/MTA			-0.1305 (-0.57)		
Dif-Ret			-0.6414 (-2.22)**	-0.6547 (-2.23)**	
Rel-Size			0.0731 (0.82)	-0.0163 (-0.29)	
Sigma			2.4621 (5.28)***	2.1673 (4.91)***	
MB			-0.0005 (-0.06)		
Price			-0.1911 (-1.60)		
CA/CL					-0.0955 (-0.88)
C	-0.7970 (-6.88)***	-2.3649 (-11.46)***	-1.9649 (-5.05)***	-2.7278 (-8.51)***	-1.9142 (-5.01)***

Panel C displays model estimated by Static Model of firms which downgrade

Panel D: Hazard Rate Model for Downgrades					
	Altman	Blume	Campbell	Shumway	Zmijewski
WC/TA	-2.1143 (-4.95)***				
EBIT/TA	-4.3382 (-4.58)***				
ME/TL	0.0126 (0.93)				
Age	0.0104 (1.89)**				
OPTMAR		0.0001 (0.83)			
LTD/TA		-0.3703 (-0.72)			
TD/TA		0.7483 (1.69)*			
Beta		0.3170 (3.04)***			
SE		27.5740 (5.02)***			
NI/TA				-2.2752 (-2.54)**	-4.0678 (-3.94)***
NI/MTA			-1.7083 (-1.12)		
TL/TA				0.9838 (4.45)***	1.1035 (3.86)**
TL/MTA			0.2036 (0.94)		
CA/MTA			-0.1572 (-0.89)		
Dif-Ret			-0.3129 (-1.24)	-0.2724 (-1.13)	
Rel-Size			0.0119 (0.18)	0.0813 (1.85)*	
Sigma			1.8409 (5.17)***	1.8294 (5.41)***	
MB			-0.0022 (-2.04)**		
Price			0.0573 (0.65)		
CA/CL					-0.1833 (-1.74)*
C	-0.9278 (-10.33)***	-2.1604 (-13.18)***	-1.9888 (-6.72)***	-2.5926 (-10.98)***	-1.5891 (-5.98)***

Panel D displays model estimated by Hazard Rate Model of firms which downgrade

**Table 9 Results for Area under the ROC Curve, Standard Error, and 95% Confidence Intervals for Whole Sample and the Difference of Areas below ROC Curves**

Panel A and Panel B show the results for  $\hat{A}$ ,  $\hat{\sigma}$ , 95% confidence intervals for static and hazard models. Panel A displays the upgrades and Panel B displays the downgrades. Panel C and Panel D present results of the test for the differences of the areas below the ROC curves of Static and Hazard models. The tables report the value of the test statistic Z, and the p-value of the test statistics of the two rating models that are compared.

Model		$\hat{A}$	$\hat{\sigma}$	95% CI
<b>Panel A : Ratings Upgrade</b>				
Altman	Static	0.510	0.0236	(0.484,0.536)
	Hazard	0.514	0.0237	(0.489,0.540)
Blume	Static	0.616	0.0203	(0.593,0.638)
	Hazard	0.633	0.0202	(0.611,0.655)
Campbell	Static	0.552	0.0205	(0.529,0.576)
	Hazard	0.603	0.0205	(0.580,0.626)
Shumway	Static	0.657	0.0201	(0.634,0.678)
	Hazard	0.649	0.0201	(0.627,0.671)
Zmijewski	Static	0.605	0.0246	(0.579,0.630)
	Hazard	0.607	0.0246	(0.582,0.632)
<b>Panel B : Ratings Downgrade</b>				
Altman	Static	0.527	0.0195	(0.502,0.553)
	Hazard	0.537	0.0194	(0.511,0.562)
Blume	Static	0.506	0.0189	(0.483,0.529)
	Hazard	0.529	0.0191	(0.507,0.552)
Campbell	Static	0.508	0.0193	(0.485,0.532)
	Hazard	0.542	0.0189	(0.519,0.566)
Shumway	Static	0.569	0.0182	(0.546,0.592)
	Hazard	0.587	0.0179	(0.564,0.609)
Zmijewski	Static	0.533	0.0193	(0.507,0.558)
	Hazard	0.534	0.0193	(0.508,0.560)
<b>Panel C: Ratings Upgrade</b>				
		<b>Difference between areas</b>	<b>z statistic</b>	<b>p-value</b>
Altman		0.00413	0.138	0.890
Blume		0.01780	2.387	0.017
Campbell		0.05080	2.938	0.003
Shumway		0.00739	0.363	0.717
Zmijewski		0.00217	0.564	0.573
<b>Panel D: Ratings Downgrade</b>				
		<b>Difference between areas</b>	<b>z statistic</b>	<b>p-value</b>
Altman		0.00921	2.295	0.022
Blume		0.02370	3.125	0.002
Campbell		0.03420	2.051	0.040
Shumway		0.01760	2.517	0.012
Zmijewski		0.00137	0.507	0.612

**Table 10 Parameter Estimates by Ordered Logit Model**

The estimates are for the ordered logit model parameters using a set of sample 1,736 observations from 2000 through 2007. The standard errors in the estimation are a generalized version of the Huber and White standard errors, which relaxes the assumptions concerning the distribution of error terms and independence among observations of the same firm. The z-statistics are given in brackets. \*\*\* significant at 1%, \*\* significant at 5%, \* significant at 10%.

	Altman	Blume	Campbell	Shumway	Zmijewski		Altman	Blume	Campbell	Shumway	Zmijewski
WC/TA	0.9761 (4.00)***					TL/MTA			-0.1427 (-1.04)		
EBIT/TA	6.1870 (9.26)***					CA/MTA			0.0762 (0.68)		
ME/TL	0.0236 (7.00)***					Dif-Ret			0.6545 (3.36)***	0.5512 (2.76)***	
Age	0.0617 (7.05)***					Rel-Size			0.4178 (7.69)***	0.6775 (14.76)***	
OPTMAR		-0.0001 (-0.92)				Sigma			-2.4569 (-10.68)***	-1.9823 (-8.07)***	
LTD/TA		-2.8131 (-7.30)***				MB			-0.0007 (-0.20)		
TD/TA		-0.2854 (-0.94)				Price			0.6585 (10.19)***		
Beta		-0.0947 (-1.45)				CA/CL					-0.1357 (-2.74)***
SE		-106.4633 (-15.92)***				EMPLOY	0.0055 (1.63)	0.0104 (3.78)***	0.0641 (15.14)***	0.0485 (12.01)***	0.0015 (0.47)
NI/TA				5.1012 (6.61)***	7.1600 (8.05)***	PROD	0.0394 (3.22)***	0.0457 (4.41)***	0.1249 (10.11)***	0.1170 (9.86)***	0.0291 (2.38)**
NI/MTA			-0.1858 (-0.60)			OUTPUT	18.7841 (3.68)***	11.3694 (2.73)***	41.4848 (8.33)***	38.5669 (8.22)***	14.7783 (2.96)***
TL/TA				-1.0387 (-5.79)***	-1.7945 (-8.11)***	GDP	0.1036 (1.67)*	0.0983 (1.85)*	0.0168 (0.28)	0.0169 (0.30)	0.1593 (2.61)***



	<b>Altman</b>	<b>Blume</b>	<b>Campbell</b>	<b>Shumway</b>	<b>Zmijewski</b>
2001	-2.2537 (-11.83)***	-2.6734 (-15.34)***	-2.3041 (-12.58)***	-2.2555 (-12.74)***	-2.1908 (-11.86)***
2002	-1.4712 (-8.15)***	-2.2370 (-13.08)***	-1.6624 (-9.67)***	-1.6108 (-9.71)***	-1.5135 (-8.80)***
2003	-1.2327 (-7.71)***	-2.0439 (-13.31)***	-1.4897 (-9.19)***	-1.4676 (-9.51)***	-1.2935 (-8.38)***
2004	-1.1531 (-6.89)***	-1.6733 (-11.30)***	-1.2741 (-8.32)***	-1.2613 (-8.37)***	-1.2989 (-8.19)***
2005	-1.2320 (-6.73)***	-1.6040 (-10.26)***	-1.3178 (-7.89)***	-1.2877 (-7.80)***	-1.4523 (-8.37)***
2006	-0.4761 (-2.37)**	-0.6588 (-3.92)***	-0.3101 (-1.61)	-0.3204 (-1.73)*	-0.6046 (-3.12)***
2007	-0.1665 (-0.88)	0.1326 (0.81)	-0.1221 (-0.61)	-0.1618 (-0.87)	-0.2401 (-1.30)

**Table 11 Effect of Changing Rating Standards on Predicted Ratings Based on the Pooled Logit Model, 2000-2007**

One way to measure the effect of changing standards on predicted ratings is, first, to ascertain the predicted rating for a company for the year of its financial and market risk characteristics using the rating standards of that year, termed the base-year prediction; and, second, to compare this predicted rating to the rating that would be predicted using an earlier or later standard. The prediction using an earlier or later standard is based on the financial and market risk characteristics of the base year. To summarize these comparisons, this table presents the net number of firms that would receive a predicted upgraded or downgraded as a percentage of the firms in the base year.

<b>Panel A: Altman</b>														
Percentage Upgraded N year(s) Earlier							Base Year	Percentage Downgraded N year(s) Later						
7	6	5	4	3	2	1		1	2	3	4	5	6	7
							2000	72.35	76.50	69.12	67.74	74.19	62.67	59.91
						31.34	2001	35.94	35.48	29.49	31.34	30.41	29.95	
					65.90	69.59	2002	52.53	41.94	45.62	41.47	44.24		
				57.14	63.59	60.83	2003	48.85	53.46	49.31	44.70			
			37.33	35.48	45.16	41.01	2004	61.75	58.06	56.22				
		29.95	37.33	41.01	49.31	64.06	2005	62.67	63.13					
	37.33	40.09	44.24	53.46	60.83	62.21	2006	46.54						
44.24	45.62	52.07	58.99	60.37	63.13	59.91	2007							
<b>Panel B: Blume</b>														
Percentage Upgraded N year(s) Earlier							Base Year	Percentage Downgraded N year(s) Later						
7	6	5	4	3	2	1		1	2	3	4	5	6	7
							2000	77.88	82.49	76.50	77.88	81.57	58.53	55.30
						40.55	2001	41.47	41.94	36.41	38.71	33.18	33.18	
					56.22	60.83	2002	58.53	60.37	60.37	44.24	45.62		
				50.69	54.84	54.38	2003	43.32	43.78	38.25	35.02			
			52.53	55.30	61.29	62.67	2004	58.53	50.23	48.85				
		47.00	54.84	61.75	64.98	67.74	2005	45.62	44.24					
	49.31	51.15	54.84	62.67	65.90	72.35	2006	41.94						
48.39	49.31	55.76	63.13	64.06	66.36	59.45	2007							
<b>Panel C: Campbell</b>														
Percentage Upgraded N year(s) Earlier							Base Year	Percentage Downgraded N year(s) Later						
7	6	5	4	3	2	1		1	2	3	4	5	6	7
							2000	69.59	74.19	58.99	59.45	63.13	61.29	55.76
						25.81	2001	32.32	34.69	26.69	27.64	29.34	28.74	
					63.13	64.98	2002	50.23	38.71	42.86	35.46	39.17		
				52.07	58.06	54.38	2003	45.16	49.31	46.08	41.47			
			36.46	29.03	44.92	34.10	2004	60.37	61.75	59.91				
		26.08	33.64	38.71	46.08	58.99	2005	57.14	59.45					
	36.41	36.08	42.46	56.68	56.68	54.84	2006	42.86						
40.46	42.40	35.48	51.15	60.46	59.45	58.08	2007							

Table 11 continued

Panel D: Shumway														
Percentage Upgraded N year(s) Earlier							Base Year	Percentage Downgraded N year(s) Later						
7	6	5	4	3	2	1		1	2	3	4	5	6	7
							2000	70.51	74.65	61.29	60.37	68.66	61.75	58.06
						28.11	2001	33.24	35.15	28.99	32.26	30.26	29.20	
					63.59	67.28	2002	51.15	39.17	46.08	36.38	40.09		
				53.00	58.53	56.68	2003	46.08	49.77	47.93	42.40			
			37.38	29.95	45.38	36.41	2004	64.06	62.21	62.21				
		28.38	34.56	39.63	46.54	61.29	2005	58.06	59.91					
	36.87	38.38	43.38	57.60	57.14	60.83	2006	43.78						
41.38	42.86	37.79	52.07	61.38	62.67	60.38	2007							

Panel E: Zmijewski														
Percentage Upgraded N year(s) Earlier							Base Year	Percentage Downgraded N year(s) Later						
7	6	5	4	3	2	1		1	2	3	4	5	6	7
							2000	70.97	75.58	69.59	70.97	76.96	56.22	53.00
						33.64	2001	34.56	35.02	29.49	34.10	30.88	30.88	
					49.31	53.92	2002	51.61	53.46	55.76	41.94	43.32		
				43.78	47.93	47.47	2003	36.41	39.17	35.94	32.72			
			45.62	48.39	54.38	55.76	2004	53.92	47.93	46.54				
		40.09	47.93	54.84	58.06	60.83	2005	43.32	41.94					
	42.40	44.24	47.93	55.76	58.99	67.74	2006	39.63						
41.47	42.40	48.85	56.22	57.14	61.75	57.14	2007							

**Table 12 Parameter Estimates Investment Ratings**

The table presents the parameter estimations for static and hazard rate models. The dependent binary variable in both models estimation is 0 for the non-change rating observations and 1 for all changed observations. The standard errors in the logit regression estimation are a generalized version of the Huber and White standard errors, which relaxes the assumptions concerning the distribution of error terms and independence among observations of the same firm. The z-statistics are given in brackets. \*\*\* significant at 1%, \*\* significant at 5%, \* significant at 10%

	Upgrade		Downgrade	
	Static	Hazard	Static	Hazard
NI/TA	0.2871 (0.16)	0.9685 (-0.55)	-5.0444 (-2.66)***	-3.2919 (-2.33)***
TL/TA	-2.7768 (-2.31)**	-2.6041 (-3.09)***	1.1606 (2.16)**	0.9851 (1.79)*
Dif-Ret	4.0415 (4.01)***	2.8296 (5.03)***	-0.9124 (-2.06)***	-0.6360 (-1.85)*
Rel-Size	0.2174 (1.35)	0.5202 (4.50)***	-0.0037 (-0.04)	0.0925 (1.39)
SE	-27.9747 (-1.05)	-28.5604 (-1.62)	14.8303 (5.17)***	22.1843 (2.27)**
CA/CL	-0.1281 (-0.65)	-0.0703 (-0.60)	-0.1577 (-1.04)	-0.2566 (-1.60)
TD/TA	-1.5190 (-2.16)***	-1.8817 (-2.26)**	0.5760 (0.75)	0.1370 (0.22)
C	-3.7631 (-3.74)	-4.7807 (-6.80)***	-2.1942 (-4.08)***	-2.0705 (-4.97)***

**Table 13 Parameter Estimates by Ordered Logit Model of Investment Ratings**

The estimates are for the ordered logit model parameters using a set of sample 1,606 observations from 2000 through 2007. The standard errors in the estimation are a generalized version of the Huber and White standard errors, which relaxes the assumptions concerning the distribution of error terms and independence among observations of the same firm. The z-statistics are given in brackets.\*\*\* significant at 1%, \*\* significant at 5%, \* significant at 10%.

	Altman	Blume	Campbell	Shumway	Zmijewski		Altman	Blume	Campbell	Shumway	Zmijewski
WC/TA	0.5417 (1.79)*					TL/MTA			-0.0115 (-0.09)		
EBIT/TA	6.0717 (7.72)***					CA/MTA			0.3513 (3.17)***		
ME/TL	0.0221 (5.91)***					Dif-Ret			0.3683 (1.65)*	0.3000 (1.39)	
Age	0.0432 (5.51)***					Rel-Size			0.2862 (4.69)***	0.4584 (8.77)***	
OPTMAR		-0.0001 (-0.67)				Sigma			-1.7831 (-5.85)***	-1.2524 (-4.22)***	
LTD/TA		-3.1533 (-6.99)***				MB			0.0051 (1.80)		
TD/TA		-0.0604 (-0.19)				Price			0.5524 (8.60)***		
Beta		-0.1708 (-1.97)				CA/CL					-0.0529 (-2.13)**
SE		-93.0228 (-8.87)***				EMPLOY	0.0119 (3.12)***	-0.0031 (-1.05)	0.0454 (9.59)***	0.0302 (6.97)***	0.0093 (2.53)**
NI/TA				5.5176 (5.66)***	8.9965 (8.21)***	PROD	0.0808 (5.14)***	0.0725 (5.72)***	0.1223 (8.69)***	0.1127 (8.01)***	0.0783 (4.96)***
NI/MTA			1.8416 (2.59)***			OUTPUT	14.1717 (2.46)**	9.6397 (2.12)**	26.8655 (5.03)***	26.4966 (5.18)***	11.0831 (1.90)**
TL/TA				-1.0553 (-5.52)***	-1.3471 (-5.24)***	GDP	-0.0694 (-0.98)	-0.0666 (-1.05)	0.0217 (0.32)	0.0173 (0.27)	0.1398 (1.98)**

	<b>Altman</b>	<b>Blume</b>	<b>Campbell</b>	<b>Shumway</b>	<b>Zmijewski</b>
2001	-1.6649 (-7.67)***	-1.9749 (-9.23)***	-1.5685 (-7.77)***	-1.5327 (-7.76)***	-1.6475 (-7.75)***
2002	-1.6582 (-8.00)***	-2.1632 (-10.17)***	-1.5095 (-7.94)***	-1.4642 (-7.79)***	-1.7749 (-8.78)***
2003	-1.4377 (-7.67)***	-1.9934 (-10.36)***	-1.4177 (-7.84)***	-1.3737 (-7.86)***	-1.5124 (-8.20)***
2004	-1.2479 (-6.48)***	-1.6576 (-9.11)***	-1.1728 (-6.69)***	-1.1636 (-6.68)***	-1.3713 (-7.34)***
2005	-0.9254 (-4.45)***	-1.2291 (-6.61)***	-0.8717 (-4.57)***	-0.8254 (-4.37)***	-1.0689 (-5.36)***
2006	-0.6539 (-2.94)***	-0.7932 (-4.08)***	-0.4800 (-2.22)**	-0.4626 (-2.22)**	-0.7434 (-3.35)***
2007	-0.5300 (-2.52)**	-0.2105 (-1.10)	-0.4210 (-1.92)*	-0.4193 (-2.02)**	-0.5713 (-2.73)***

**Table 14 Parameter Estimates S&P500 by Ordered Logit Model**

The estimates are for the ordered logit model parameters using a set of sample 4,330 observations from 1997 through 2006. The standard errors in the estimation are a generalized version of the Huber and White standard errors, which relaxes the assumptions concerning the distribution of error terms and independence among observations of the same firm.

<b>Variable</b>	<b>Coefficient</b>	<b>Z-statistic</b>
MKT	0.9846	27.49***
Beta	-0.7809	-14.38***
TD/TA	5.9665	2.03**
LTD/TA	-7.2210	-16.84***
TIE	-0.0004	-0.51
ROA	4.6257	5.92***
PD	-8.0234	-1.05
1998	-1.6832	-3.41***
1999	-1.4539	-2.98***
2000	-1.2596	-3.93***
2001	-0.7958	-7.51***
2002	-1.0287	-6.16***
2003	-1.1008	-4.62***
2004	-0.5864	-6.96***
2005	-0.4533	-9.00***
2006	-0.5236	-10.98***

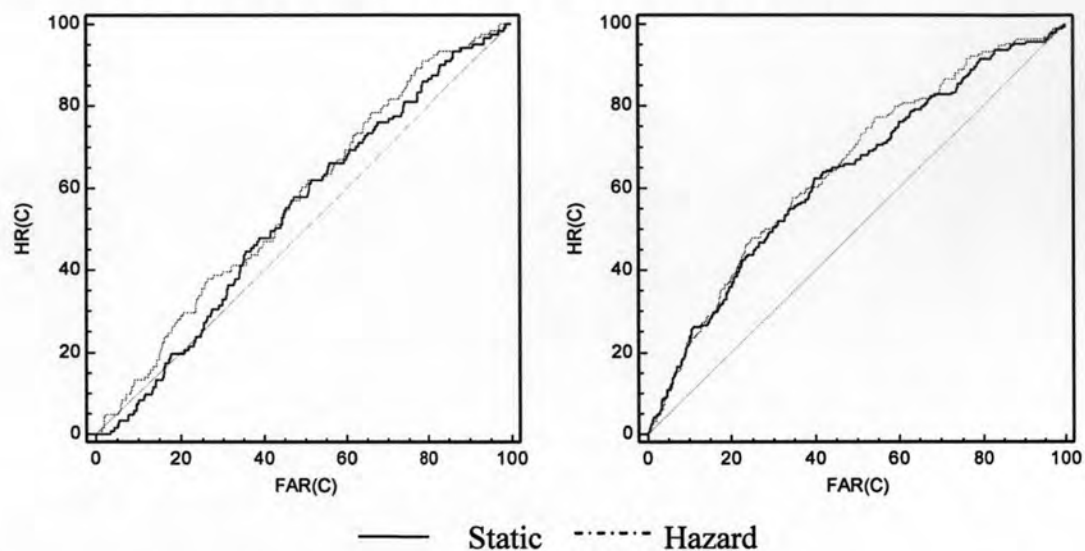
\*\*\* significant at 1%, \*\* significant at 5%



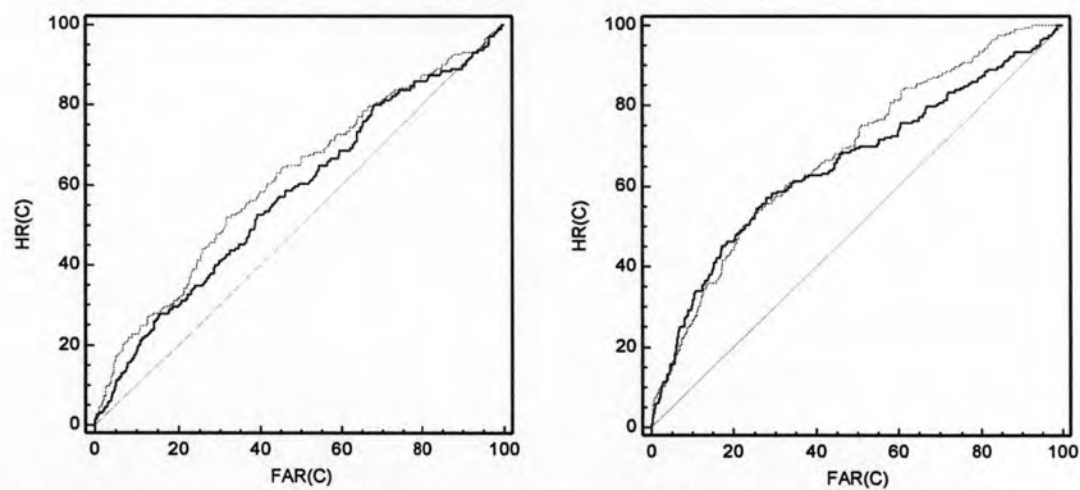


### Figure 1 ROC Curves for Upgrades of Investment Ratings

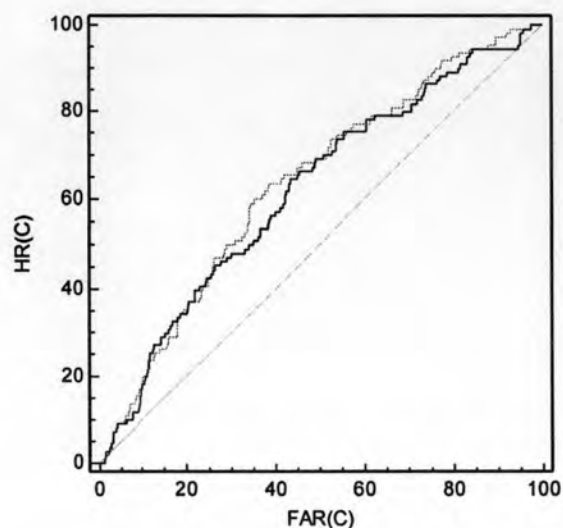
The below figure on the left shows the ROC curves estimated by the Altman's model applying static and hazard rate techniques. The figure on the right shows the ROC curves estimated by the Blume's model applying static and hazard rate techniques.



The below figure on the left shows the ROC curves estimated by the Campbell's model applying static and hazard rate techniques. The figure on the right shows the ROC curves estimated by the Shumway's model applying static and hazard rate techniques.

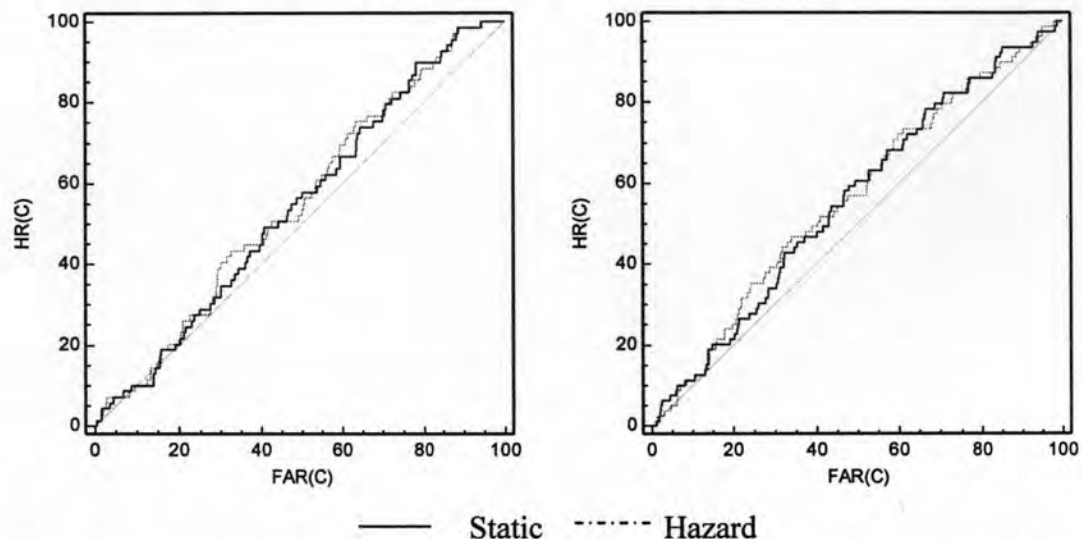


The below figure on the shows the ROC curves estimated by the Zmijewski's model

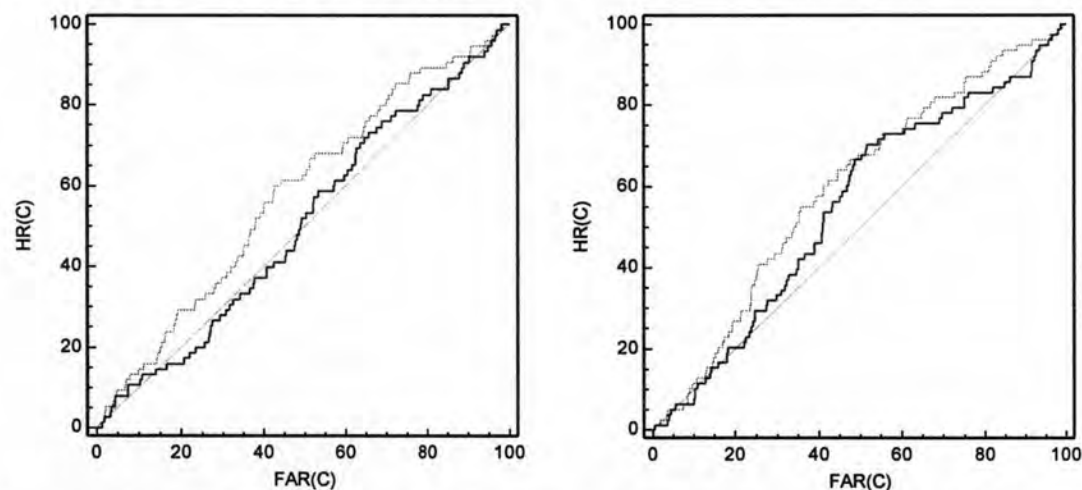


### Figure 2 ROC Curves for Downgrades of Investment Ratings

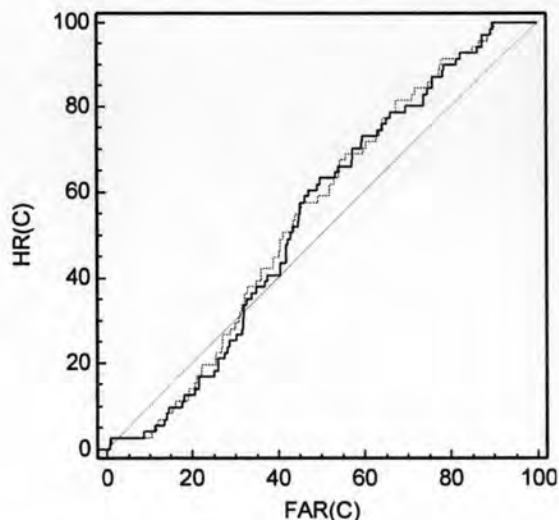
The below figure on the left shows the ROC curves estimated by the Altman's model applying static and hazard rate techniques. The figure on the right shows the ROC curves estimated by the Blume's model applying static and hazard rate techniques.



The below figure on the left shows the ROC curves estimated by the Campbell's model applying static and hazard rate techniques. The figure on the right shows the ROC curves estimated by the Shumway's model applying static and hazard rate techniques.

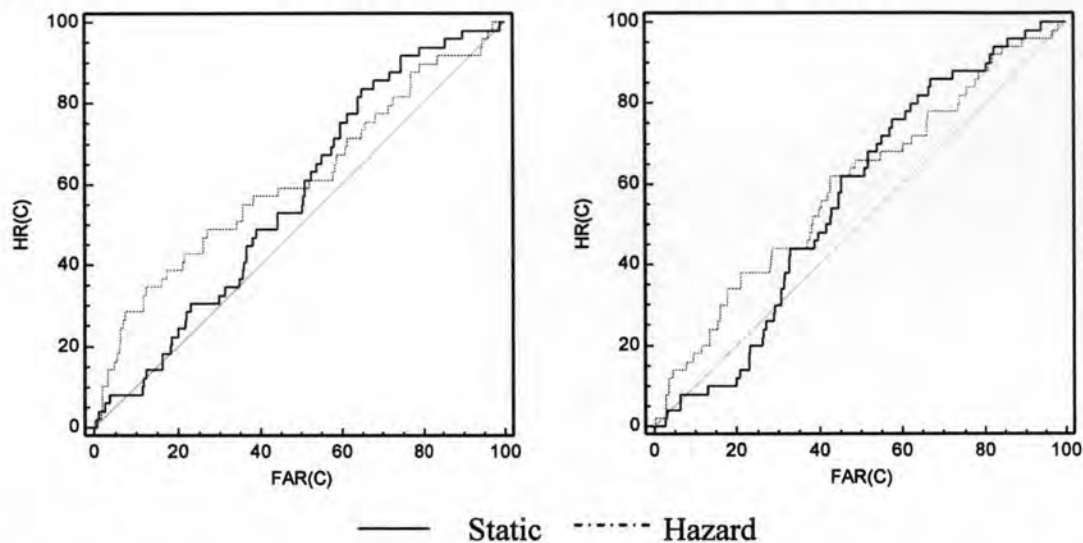


The below figure on the shows the ROC curves estimated by the Zmijewski's model

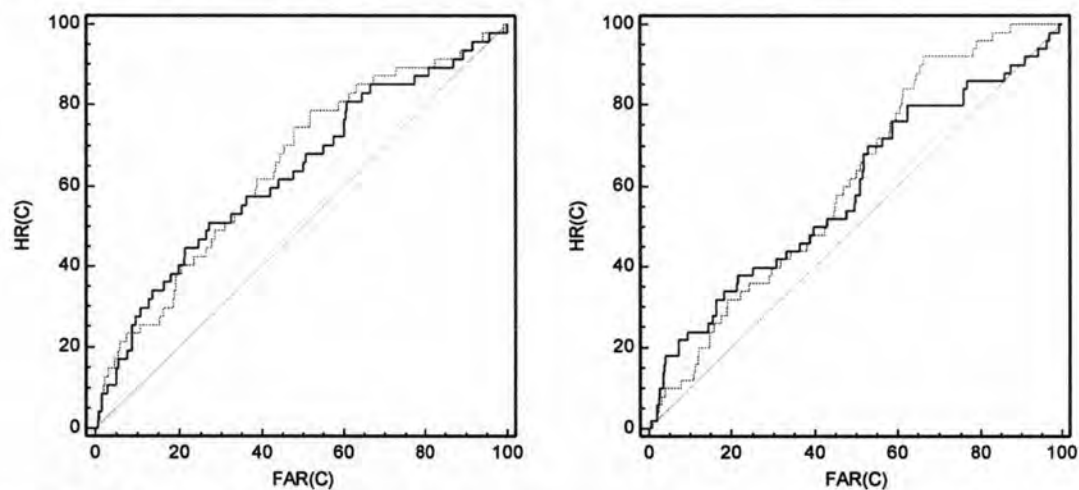


### Figure 3 ROC Curves for Upgrades of Non-Investment Ratings

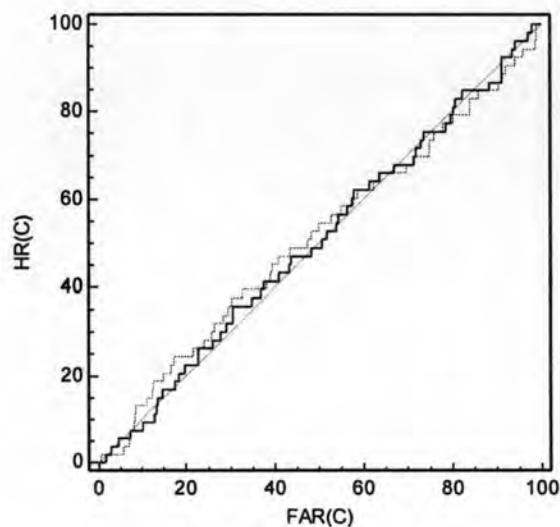
The below figure on the left shows the ROC curves estimated by the Altman's model applying static and hazard rate techniques. The figure on the right shows the ROC curves estimated by the Blume's model applying static and hazard rate techniques.



The below figure on the left shows the ROC curves estimated by the Campbell's model applying static and hazard rate techniques. The figure on the right shows the ROC curves estimated by the Shumway's model applying static and hazard rate techniques.

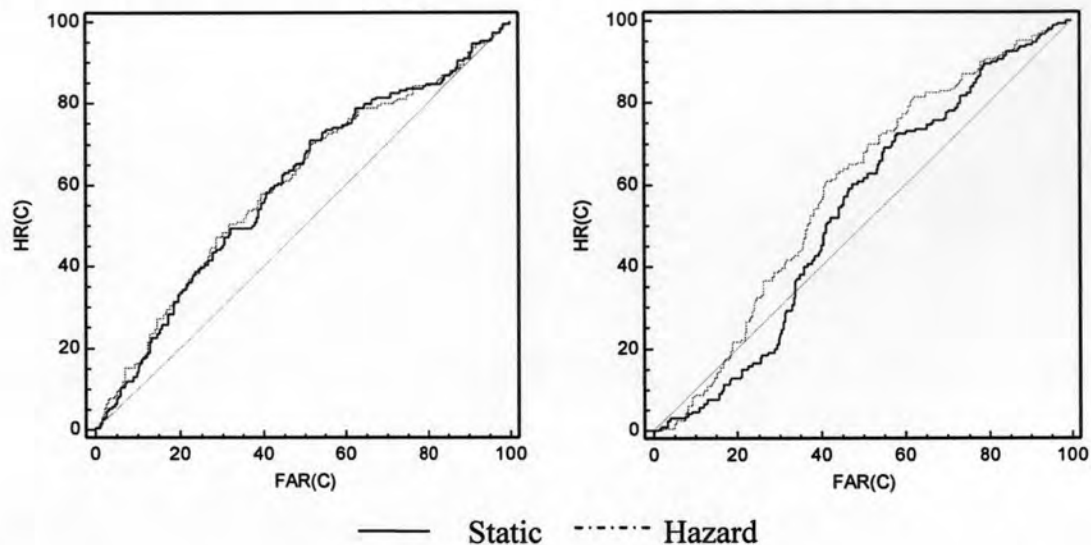


The below figure on the shows the ROC curves estimated by the Zmijewski's model

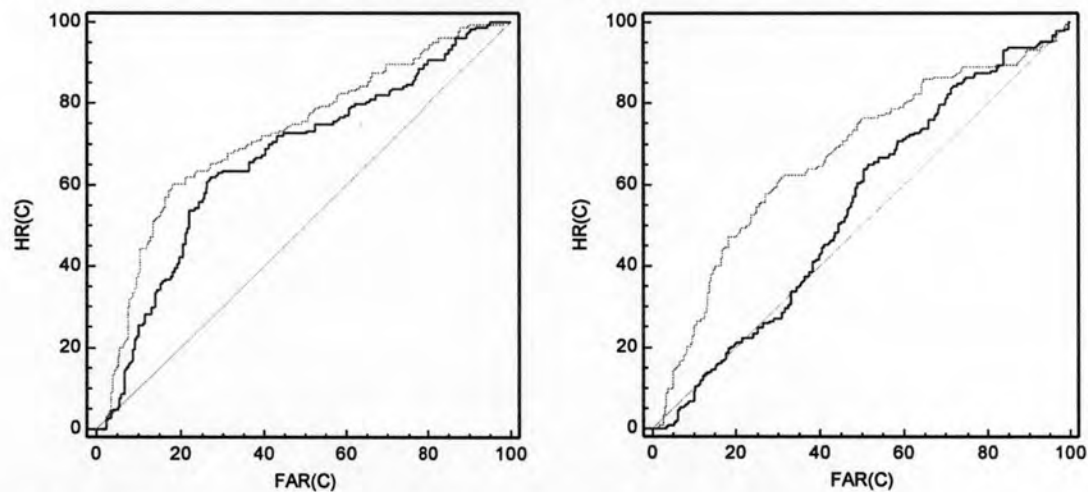


### Figure 4 ROC Curves for Downgrades of Non-Investment Ratings

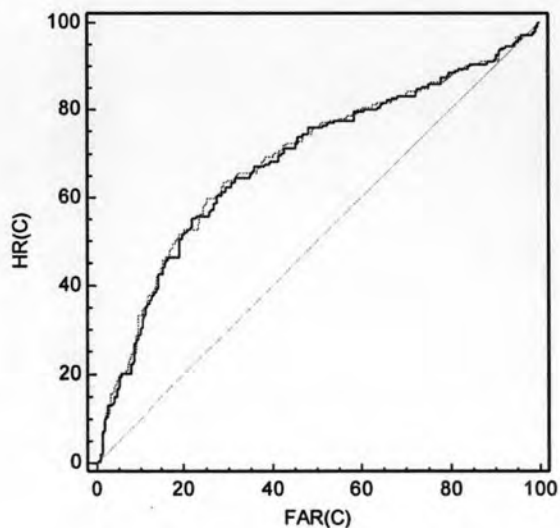
The below figure on the left shows the ROC curves estimated by the Altman's model applying static and hazard rate techniques. The figure on the right shows the ROC curves estimated by the Blume's model applying static and hazard rate techniques.



The below figure on the left shows the ROC curves estimated by the Campbell's model applying static and hazard rate techniques. The figure on the right shows the ROC curves estimated by the Shumway's model applying static and hazard rate techniques.

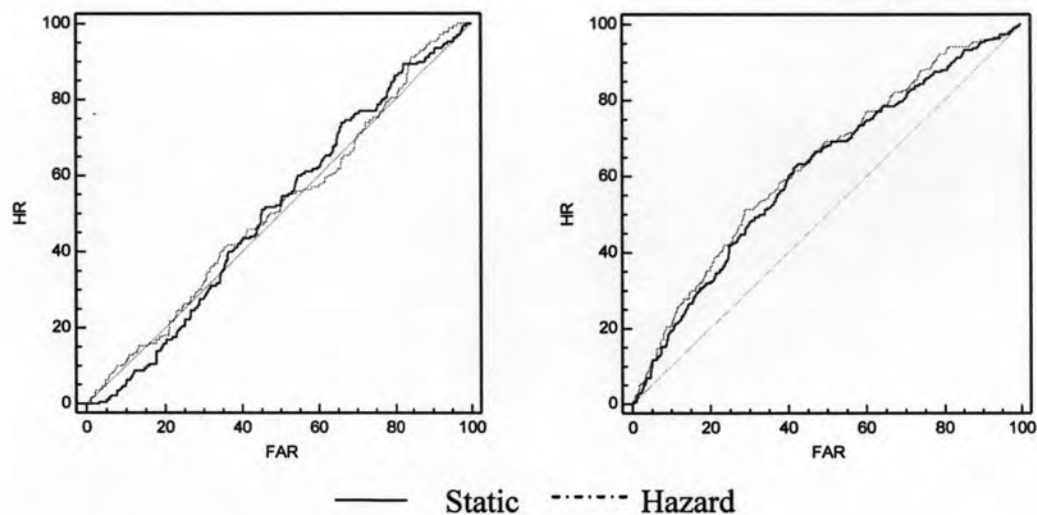


The below figure on the shows the ROC curves estimated by the Zmijewski's model

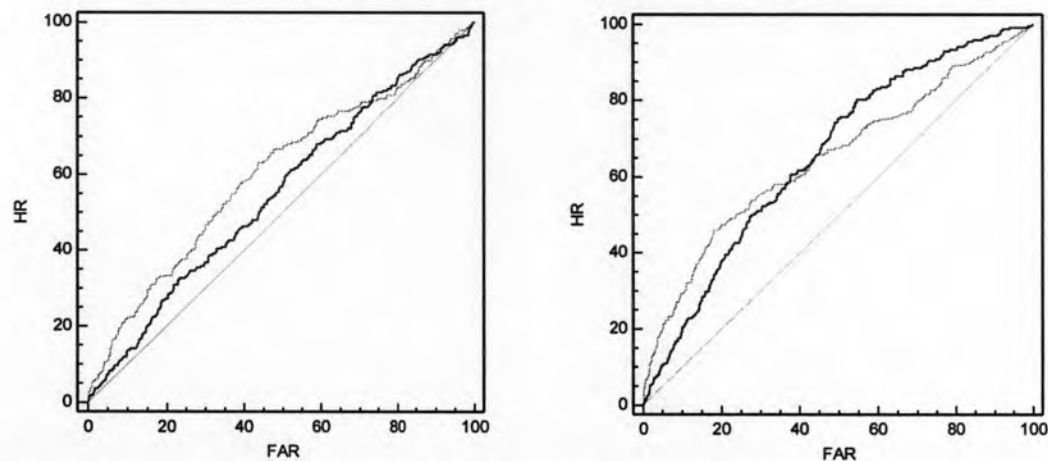


### Figure 5 ROC Curves for Upgrades and Downgrades of Whole Sample

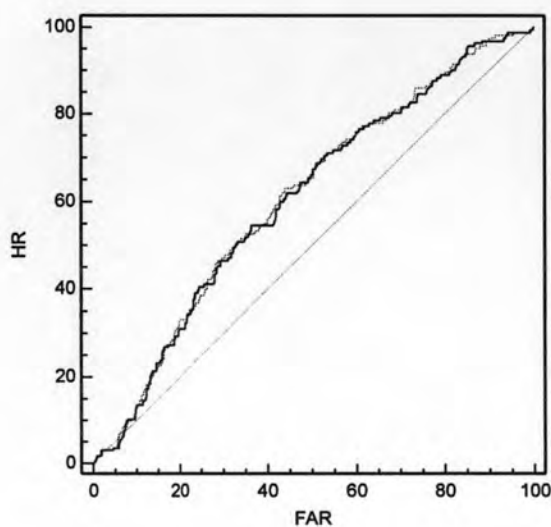
The below figure on the left shows the ROC curves for upgrades estimated by the Altman's model applying static and hazard rate techniques. The figure on the right shows the ROC curves estimated by the Blume's model applying static and hazard rate techniques.



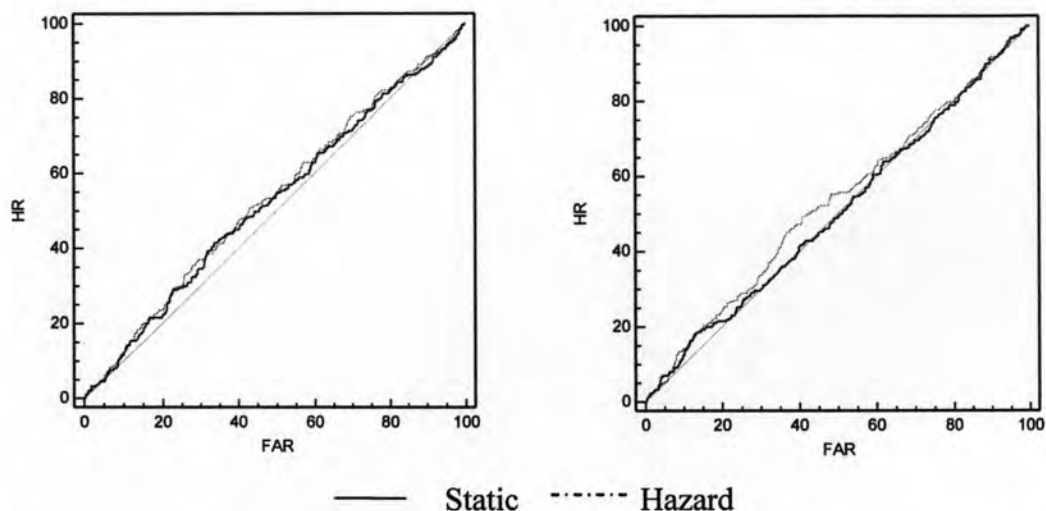
The below figure on the left shows the ROC curves for upgrades estimated by the Campbell's model applying static and hazard rate techniques. The figure on the right shows the ROC curves estimated by the Shumway's model applying static and hazard rate techniques.



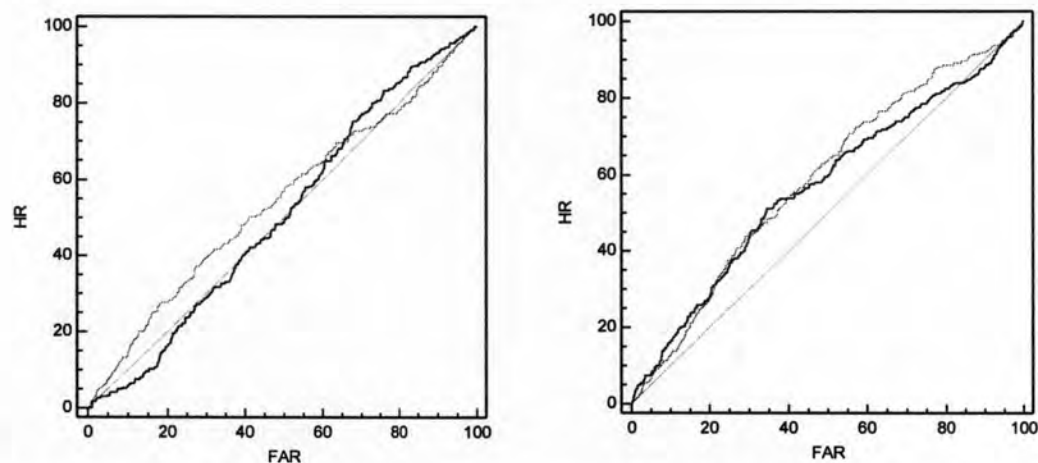
The below figure on the shows the ROC curves estimated for upgrades by the Zmijewski's model



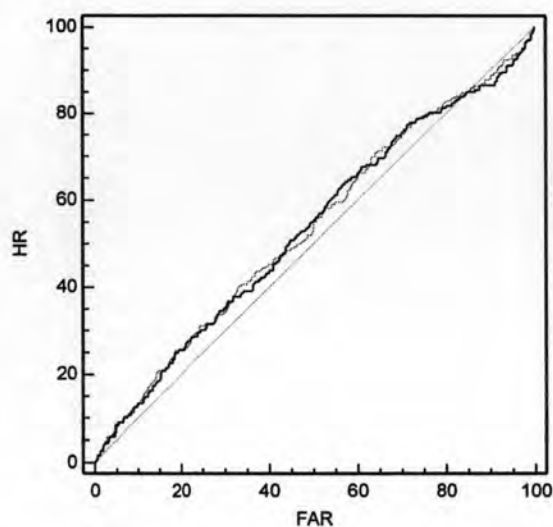
The below figure on the left shows the ROC curves for downgrades estimated by the Altman's model applying static and hazard rate techniques. The figure on the right shows the ROC curves estimated by the Blume's model applying static and hazard rate techniques.



The below figure on the left shows the ROC curves for downgrades estimated by the Campbell's model applying static and hazard rate techniques. The figure on the right shows the ROC curves estimated by the Shumway's model applying static and hazard rate techniques.

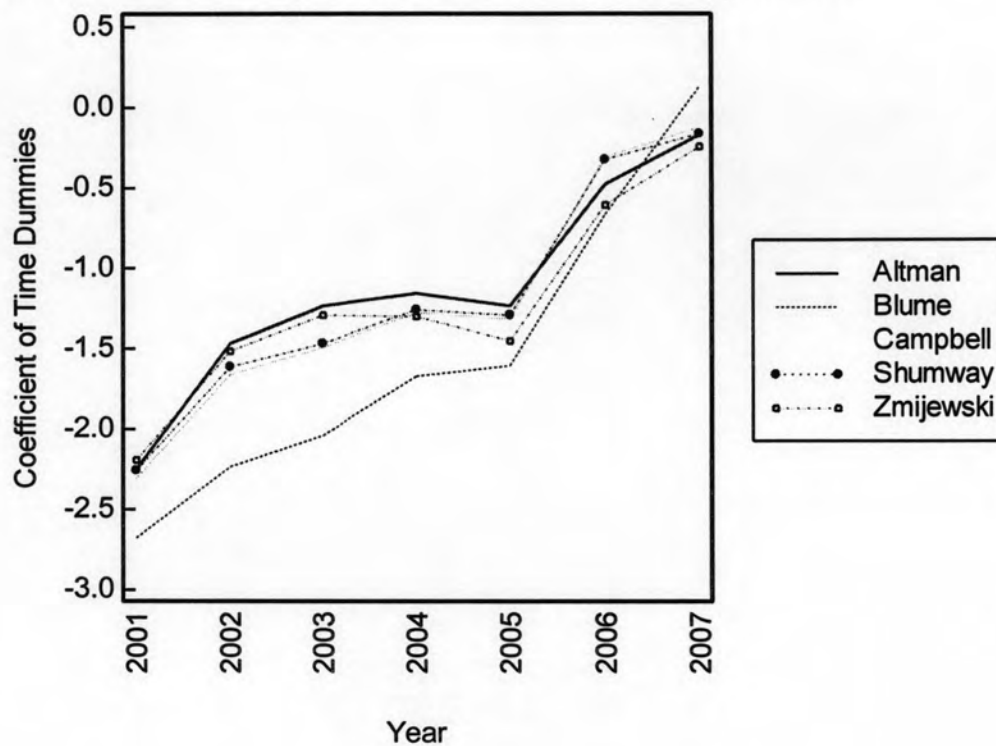


The below figure on the shows the ROC curves estimated for downgrades by the Zmijewski's model



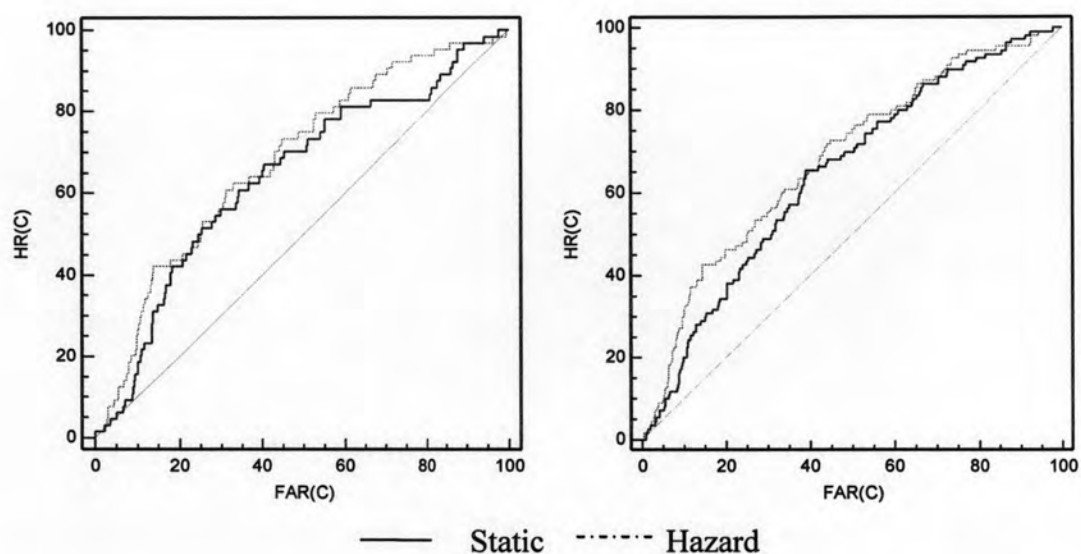
**Figure 6 Plots of the Estimates of the Coefficient of Time Dummies from the Ordered Logit Model**

The estimates of the coefficient plotted over time come from the ordered logit model estimated 1,736 observations from 2000 through 2007. Upper values of the coefficient imply more lenient rating standard, given the explanatory variables of the five models.



**Figure 7 ROC Curves for Upgrades and Downgrades of Investment Ratings**

The below figure on the left shows the ROC curves of upgrades and on the right shows for downgrades of investment rated firms estimated by the new set of explanatory variables.

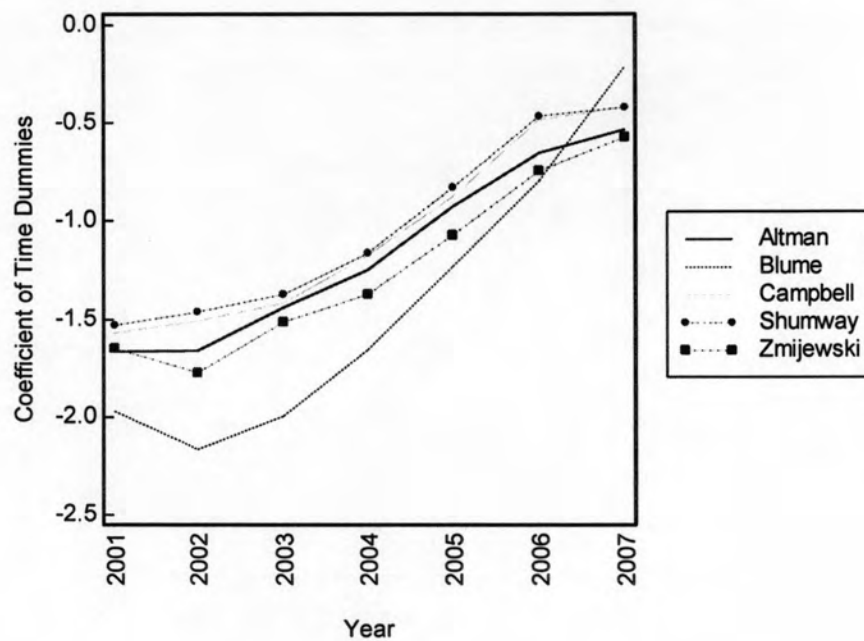


	AUC	SE	95% CI
<b>Upgrades</b>			
Static	0.643	0.0323	(0.612,0.673)
Hazard	0.682	0.0302	(0.652,0.711)
Difference between areas	0.039	0.0207	p-value = 0.059
<b>Downgrades</b>			
Static	0.646	0.0297	(0.615,0.675)
Hazard	0.682	0.0293	(0.652,0.711)
Difference between areas	0.036	0.0116	p-value = 0.002



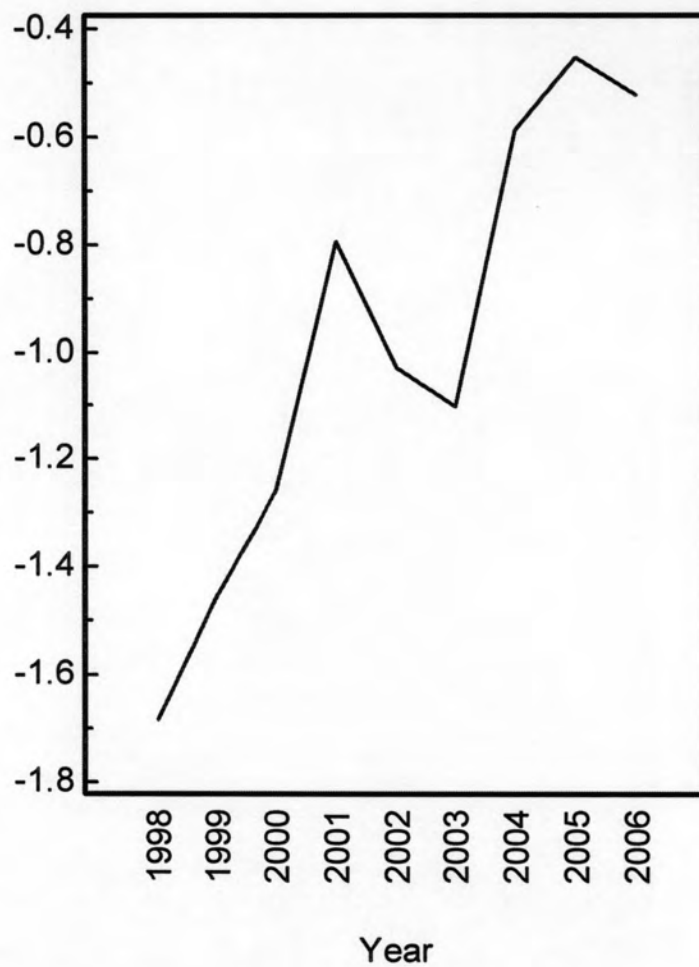
**Figure 8 Plots of the Estimates of the Coefficient of Time Dummies from the Ordered Logit Model of Investment Ratings**

The estimates of the coefficient plotted over time come from the ordered logit model estimated of investment rated firms 1,606 observations from from 2000 through 2007. Upper values of the coefficient imply more lenient rating standard, given the explanatory variables of the five models.



**Figure 9 Plots of the Estimates of the Coefficient of Time Dummies from the Ordered Logit Model of S&P500**

The estimates of the coefficient plotted over time come from the ordered logit model estimated of S&P500 4,330 observations from from 1997 through 2006. Upper values of the coefficient imply more lenient rating standard, given the explanatory variables of the five models.



## **BIOGRAPHY**

Miss. Nantiya Kawewongprawat was born in May 12, 1984 in Bangkok. At the secondary school, she graduated from Prince of Songkla University Demonstration Secondary School. At the undergraduate level, she graduated from the Faculty of Commerce and Accountancy, Chulalongkorn University in March 2006 with a Bachelor of Business Administration degree, majoring in Banking and Finance. She joined the Master of Science in Finance program, Chulalongkorn University in June 2006.