Online-Appendix zu

„An Empirical Analysis of European Credit Default Swap Spread Dynamics“

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Appendices

Appendix A Assumptions of the model by Merton (1974)

In the seminal work of Merton (1974) the following assumptions are made:

1. No transaction costs,no liquidations costs, no trading costs and no taxes are present
2. Assets are perfectly divisible
3. The theorem of Modigliani and Miller (1958)* holds, thus changes in the capital structure does not change the firm value
4. Trading takes place in continuous time
5. No short selling constraints
6. There exist a large number of investors with homogeneous wealth levels such that every investor can buy and sell the asset in the marketplace up to the individual demand
7. The term structure of interest rates is flat and constant trough time
8. The assets of a firm follows a geometric Brownian motion

$$\frac{dV_t}{V_t} = (\mu - \delta)dt + \sigma dW_t$$

with μ being the expected return on the assets of the firm per time unit, δ representing the total firm payout per time unit, σ the asset volatility per time unit and dW_t a Wiener process/geometric Brownian motion driving diffusion over time.

* Modigliani, F. and Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment. The American Economic Review, 48(3):261–297.

Appendix B Sector specific CreditGrades Model estimation

B.1 Plots for historical volatility estimation

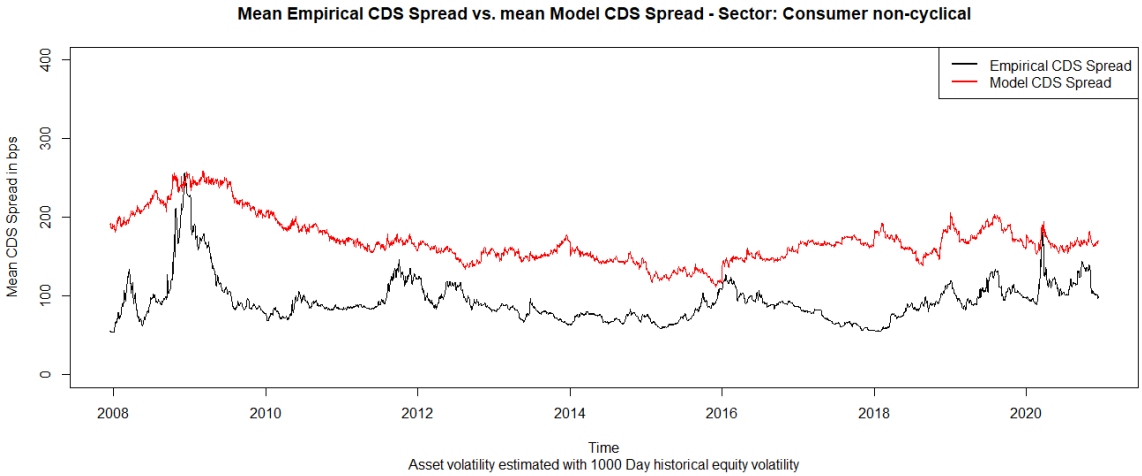

Figure 4: Estimated mean cross-sectional CDS spread for non-cyclical sector using the CG model with an asset volatility estimator of 1000-day rolling window equity volatility

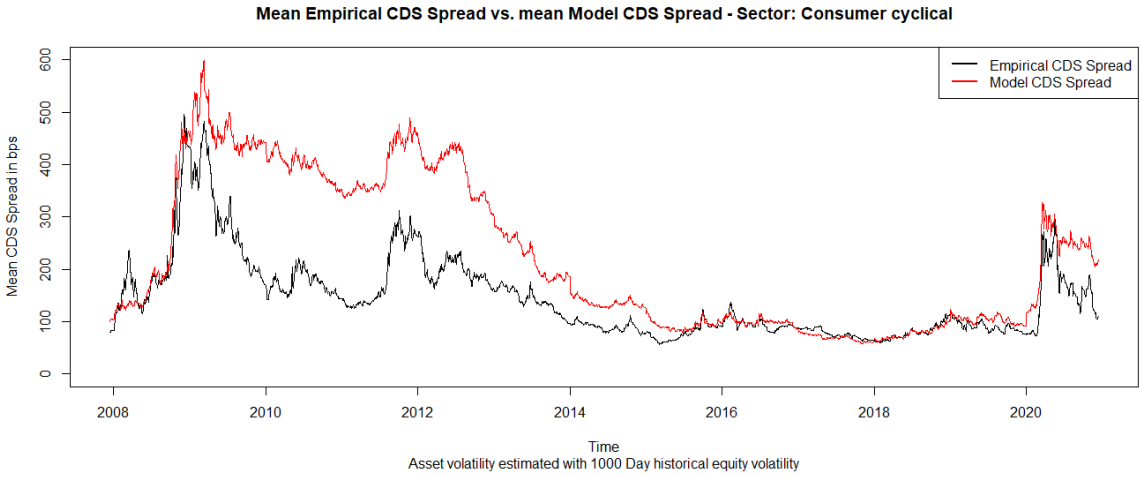

Figure 5: Estimated mean cross-sectional CDS spread for cyclical sector using the CG model with an asset volatility estimator of 1000-day rolling window equity volatility

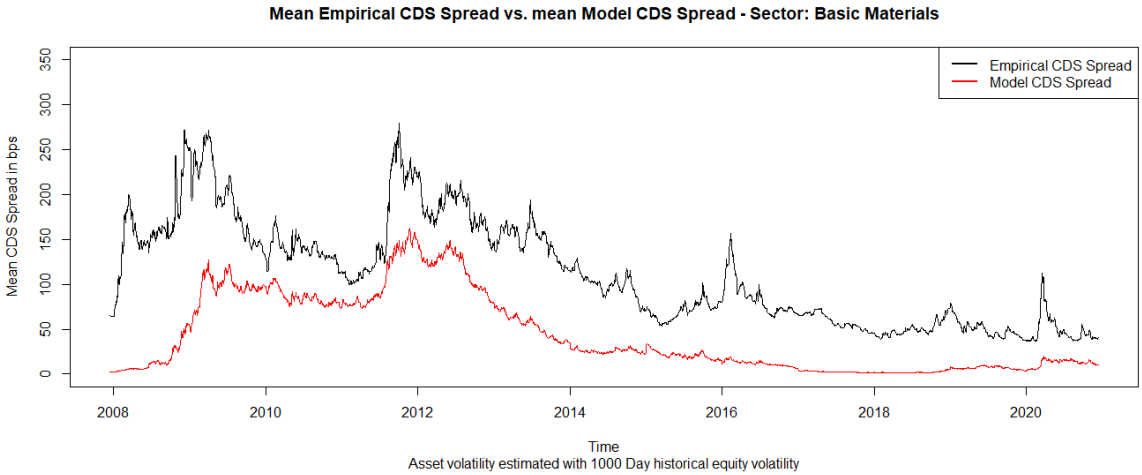

Figure 6: Estimated mean cross-sectional CDS spread for sector basic materials using the CG model with an asset volatility estimator of 1000-day rolling window equity volatility

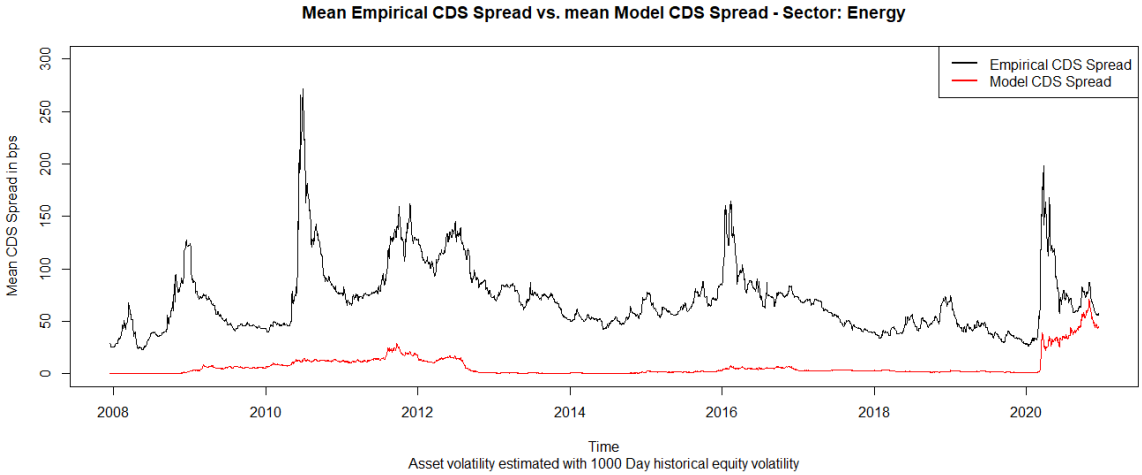

Figure 7: Estimated CDS spread for sector energy using the CG model with an asset volatility estimator of 1000-day rolling window equity volatility

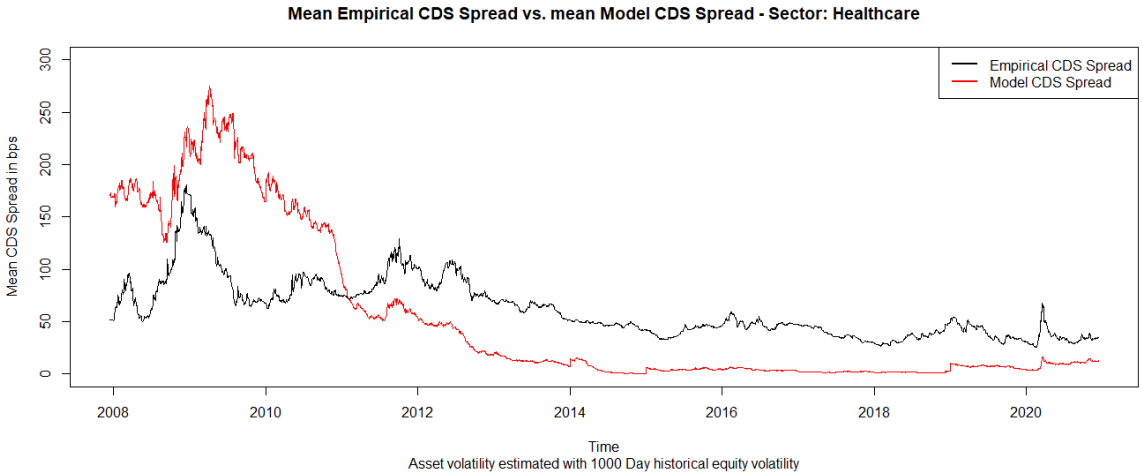

Figure 8: Estimated mean cross-sectional CDS spread for sector healthcare using the CG model with an asset volatility estimator of 1000-day rolling window equity volatility

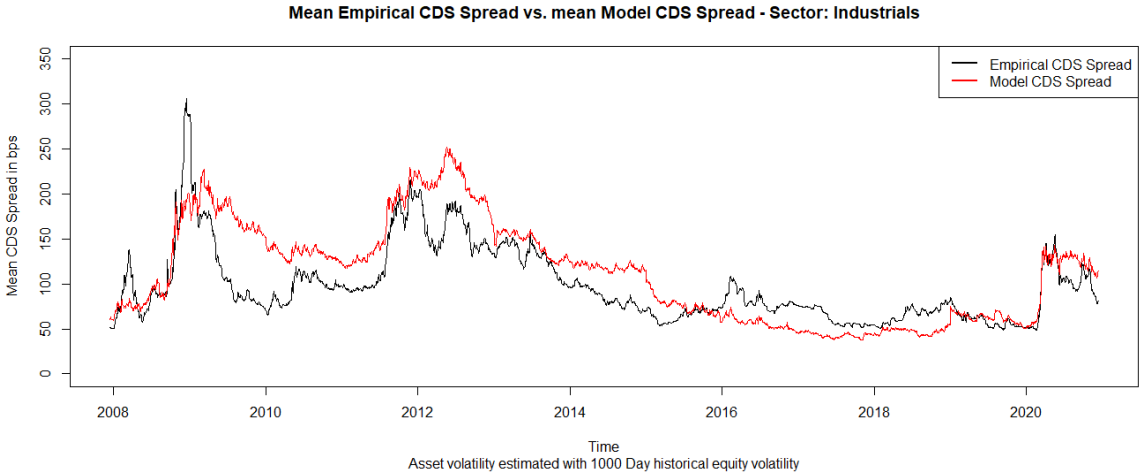

Figure 9: Estimated mean cross-sectional CDS spread for sector industrials using the CG model with an asset volatility estimator of 1000-day rolling window equity volatility

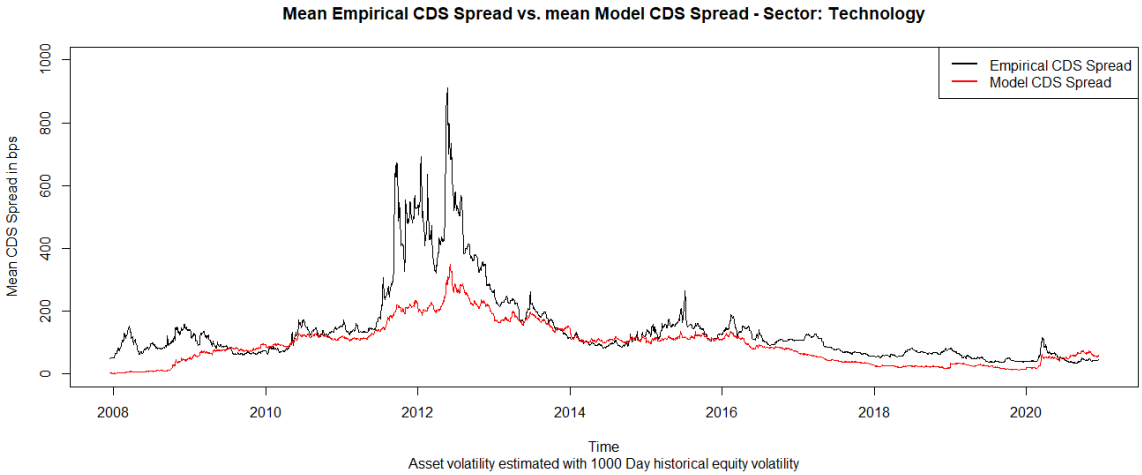

Figure 10: Estimated mean cross-sectional CDS spread for sector technology using the CG model with an asset volatility estimator of 1000-day rolling window equity volatility

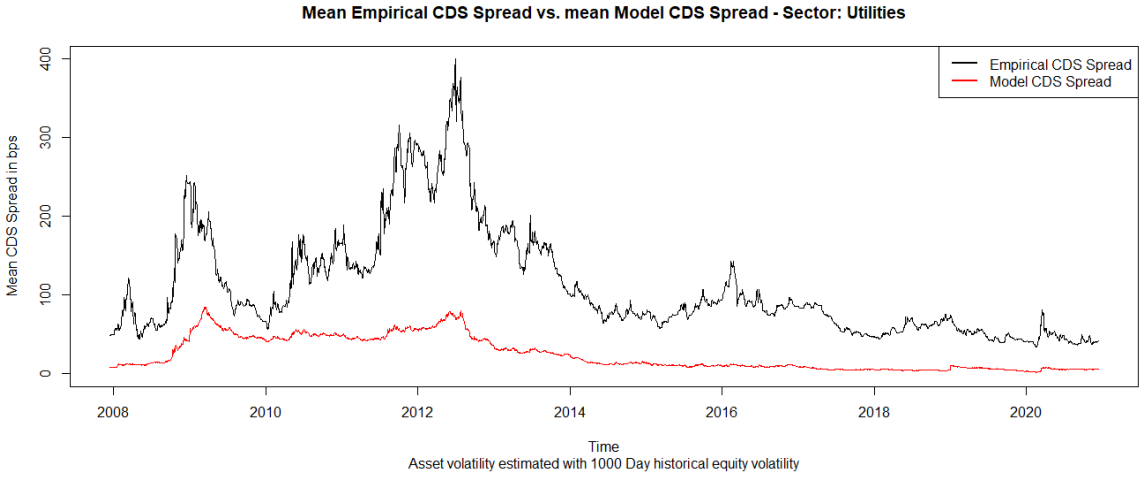

Figure 11: Estimated mean cross-sectional CDS spread for sector utilities using the CG model with an asset volatility estimator of 1000-day rolling window equity volatility

B.2 Plots for option implied volatility estimation

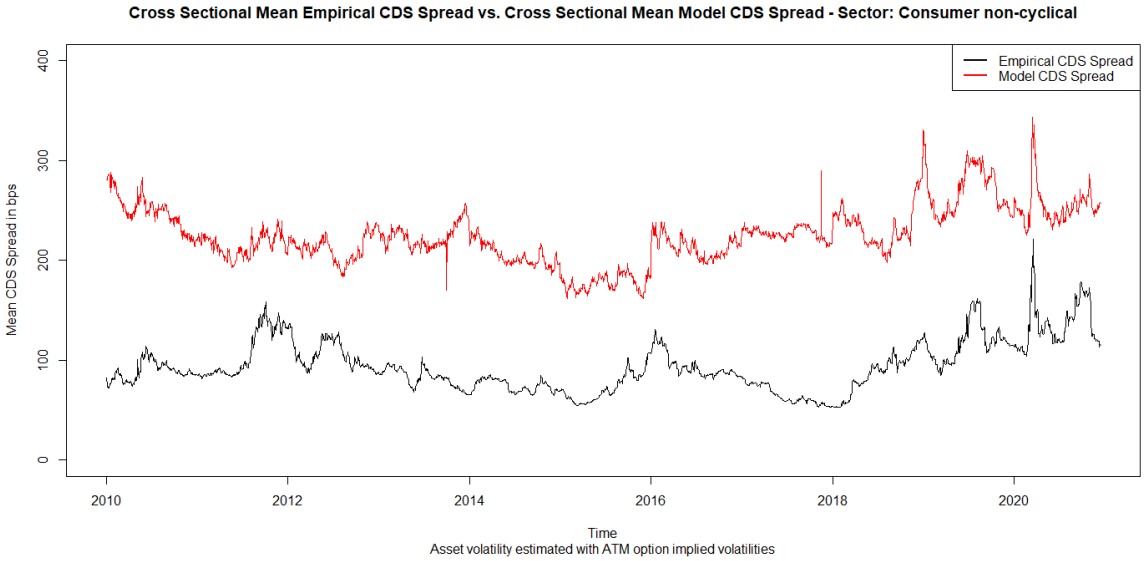

Figure 12: Estimated mean cross-sectional CDS spread for non-cyclical sector using the CG model with an asset volatility estimator of one year at-the-money option implied volatility

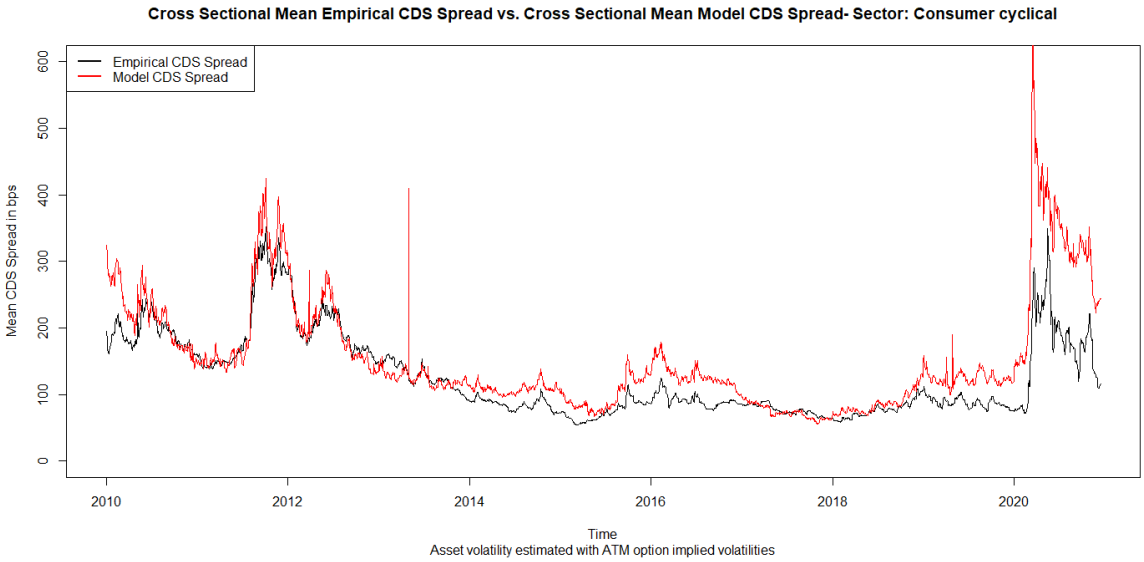

Figure 13: Estimated mean cross-sectional CDS spread for cyclical sector using the CG model with an asset volatility estimator of one year at-the-money option implied volatility

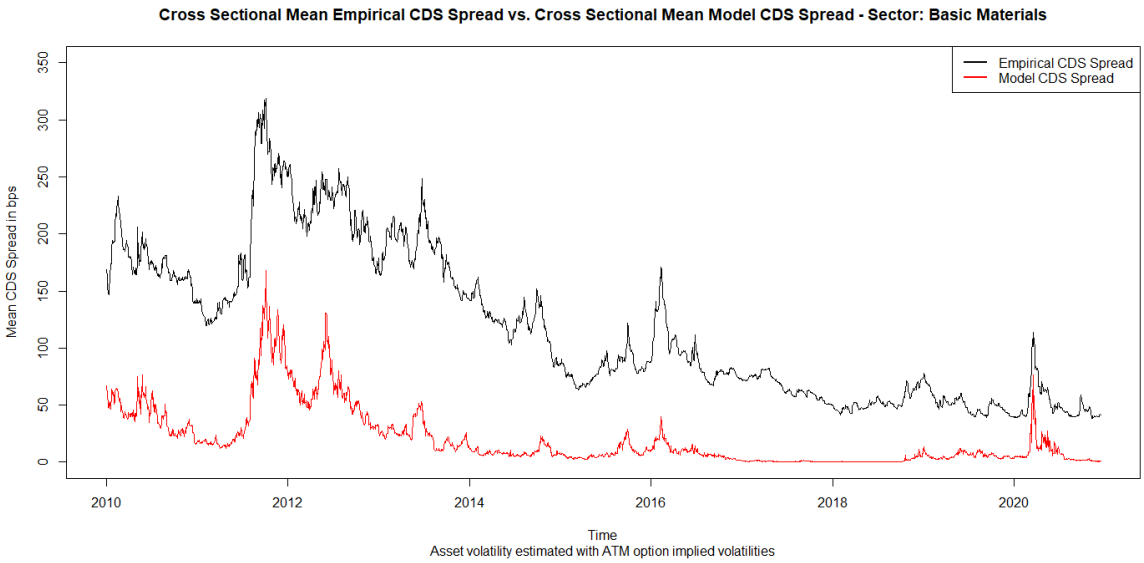

Figure 14: Estimated mean cross-sectional CDS spread for sector basic materials using the CG model with an asset volatility estimator of one year at-the-money option implied volatility

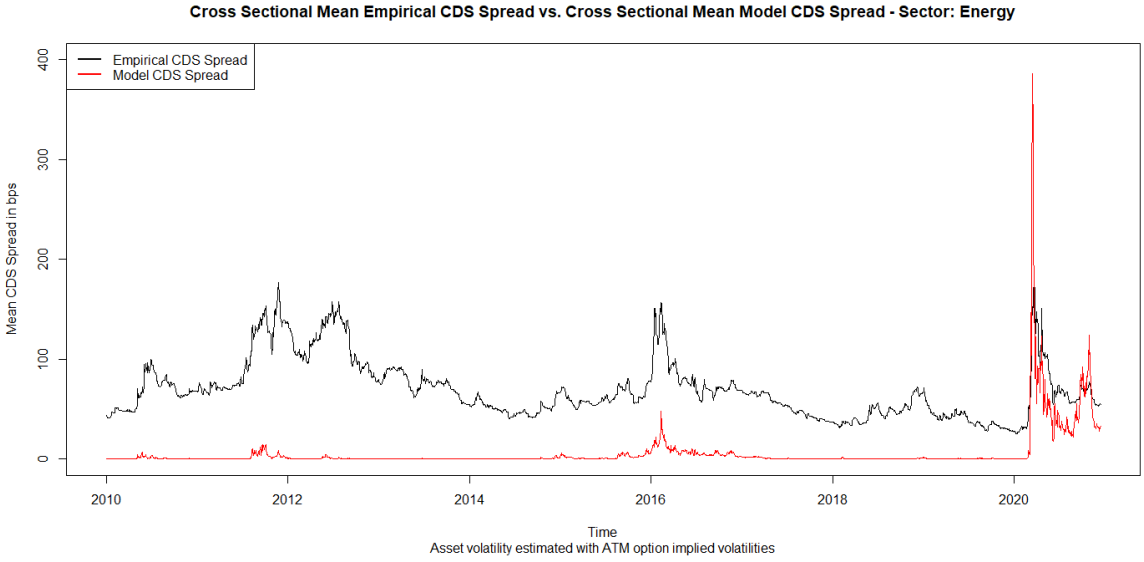

Figure 15: Estimated mean cross-sectional CDS spread for sector energy using the CG model with an asset volatility estimator of one year at-the-money option implied volatility

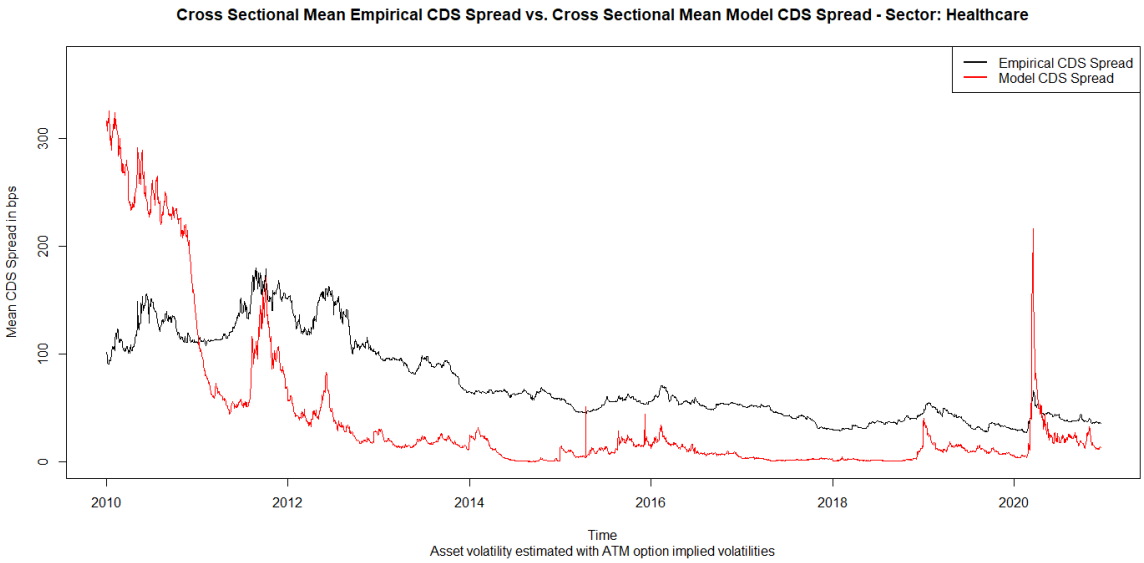

Figure 16: Estimated mean cross-sectional CDS spread for sector healthcare using the CG model with an asset volatility estimator of one year at-the-money option implied volatility

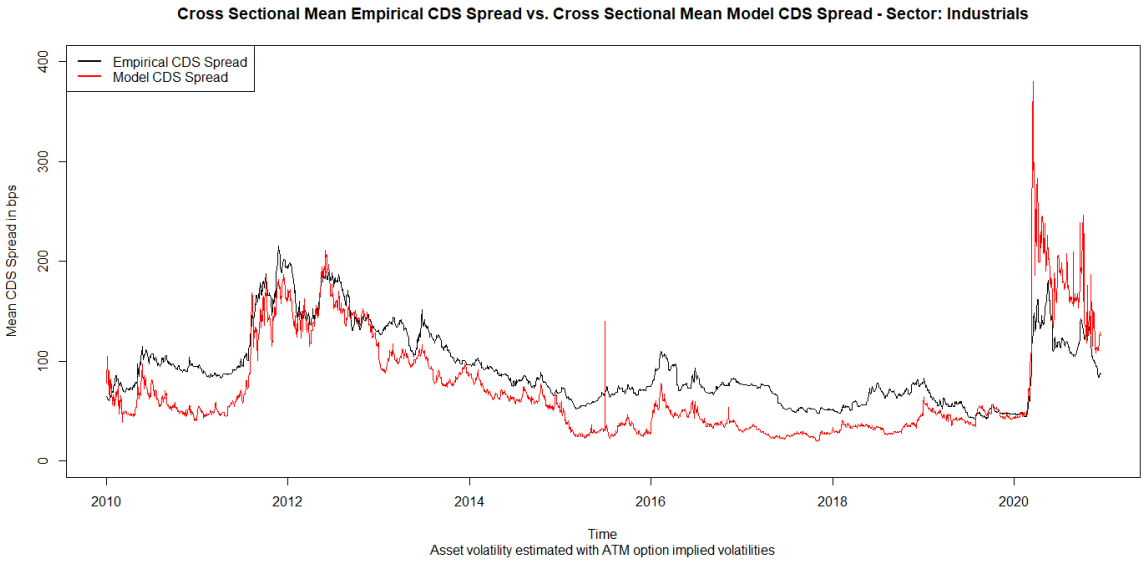

Figure 17: Estimated mean cross-sectional CDS spread for sector industrials using the CG model with an asset volatility estimator of one year at-the-money option implied volatility

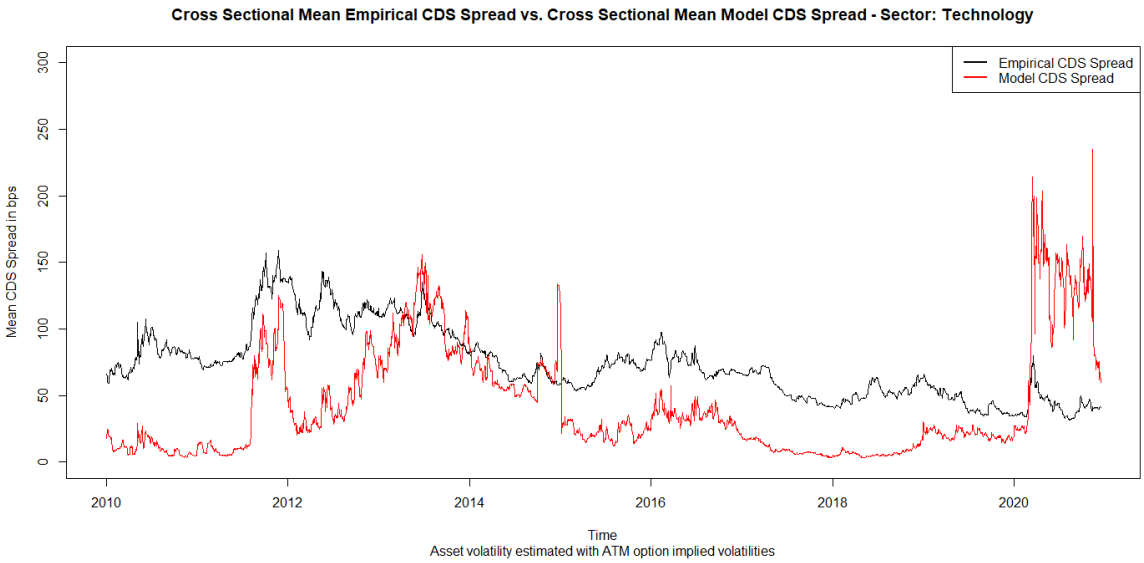

Figure 18: Estimated mean cross-sectional CDS spread for sector technology using the CG model with an asset volatility estimator of one year at-the-money option implied volatility

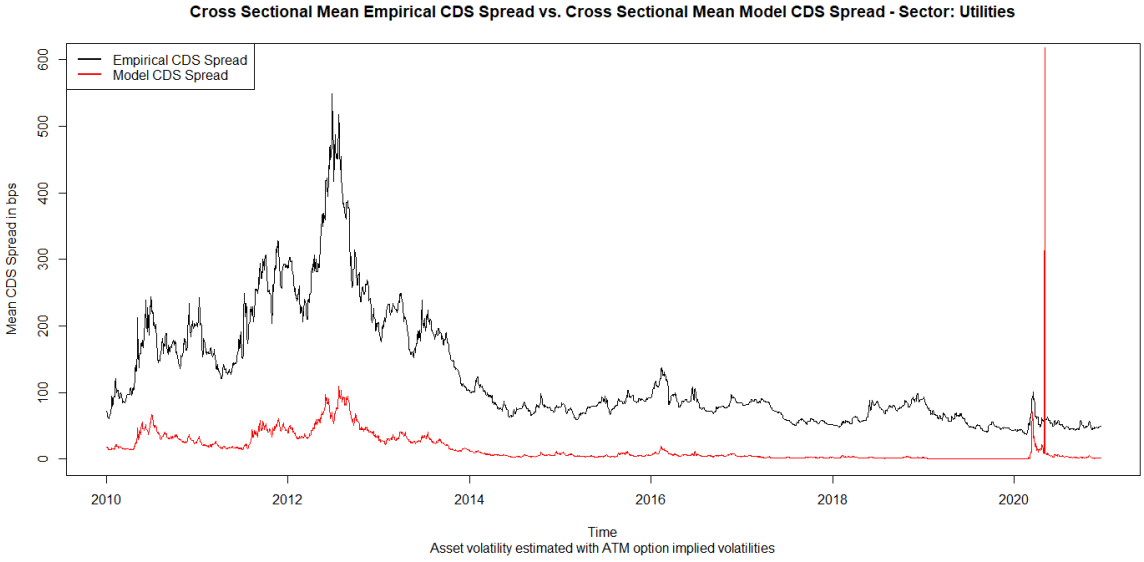

Figure 19: Estimated mean cross-sectional CDS spread for sector utilities using the CG model with an asset volatility estimator of one year at-the-money option implied volatility

B.3 Gap plots for historical volatility estimation

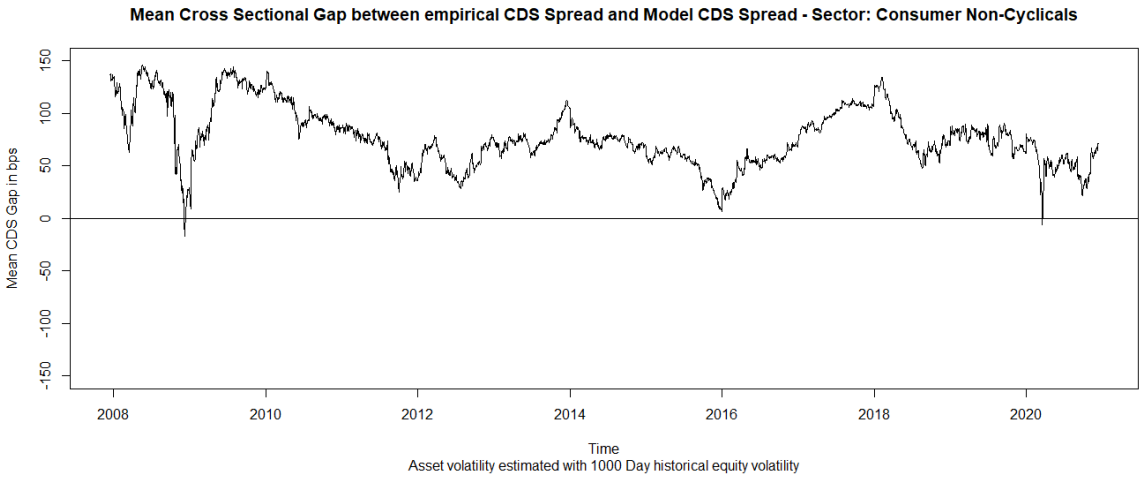

Figure 20: Estimated mean cross-sectional gap between empirical CDS spread and model CDS spread for non-cyclical sector using the CG model with an asset volatility estimator of 1000-day rolling window equity volatility

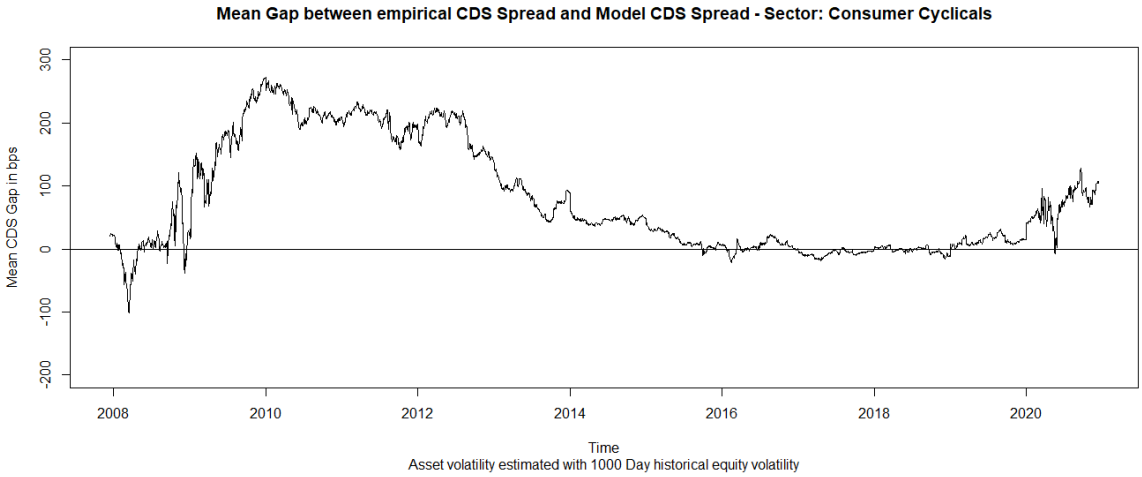

Figure 21: Estimated mean cross-sectional gap between empirical CDS spread and model CDS spread for cyclical sector using the CG model with an asset volatility estimator of 1000-day rolling window equity volatility

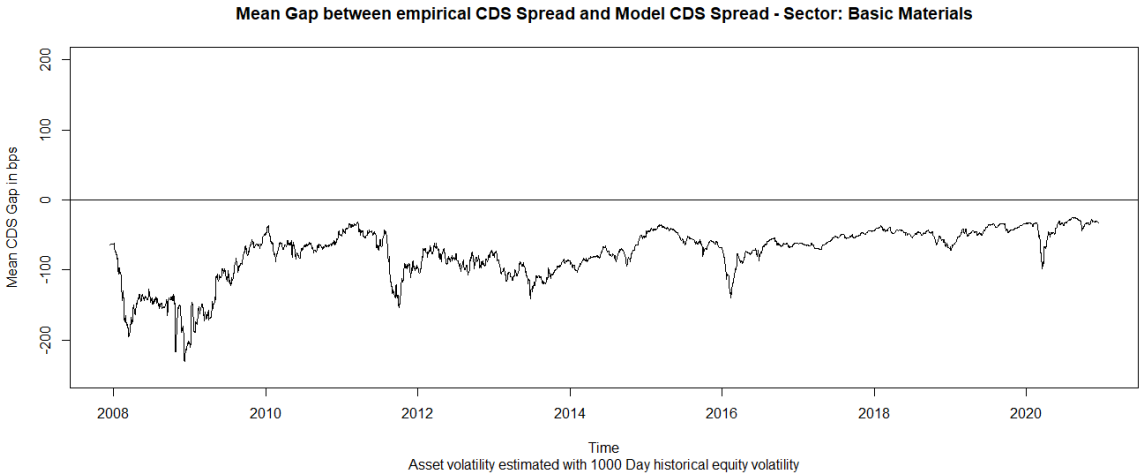

Figure 22: Estimated mean cross-sectional gap between empirical CDS spread and model CDS spread for sector basic materials using the CG model with an asset volatility estimator of 1000-day rolling window equity volatility

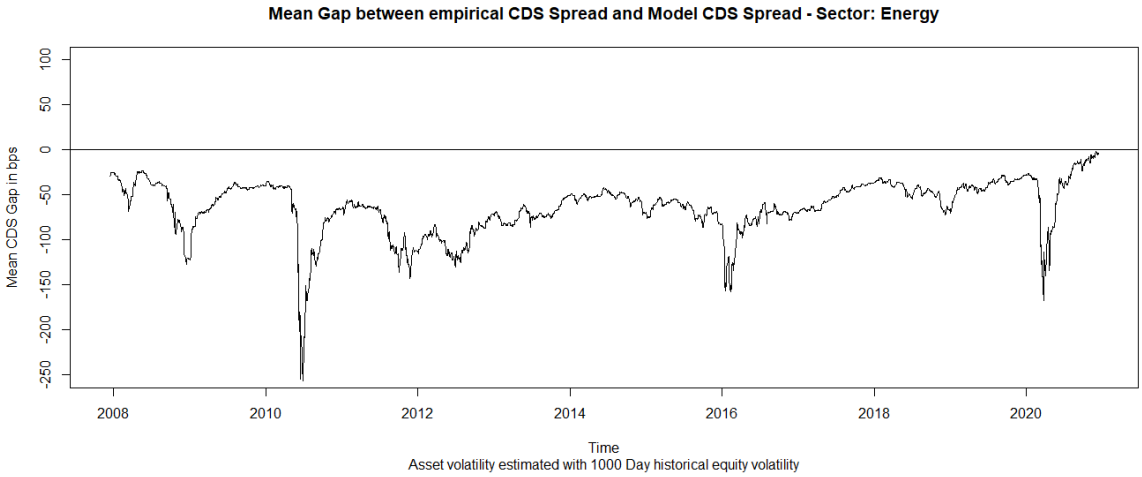

Figure 23: Estimated mean cross-sectional gap between empirical CDS spread and model CDS spread for sector energy using the CG model with an asset volatility estimator of 1000-day rolling window equity volatility

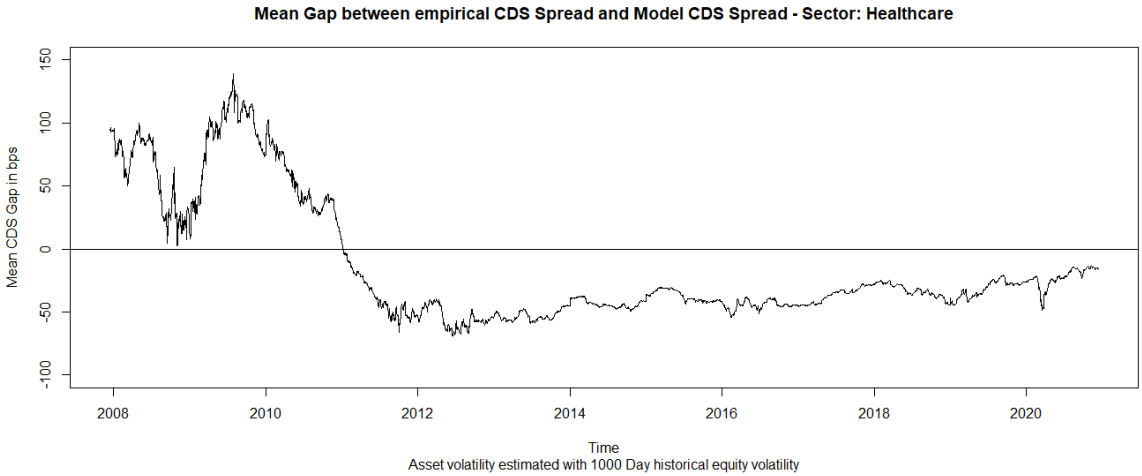

Figure 24: Estimated mean cross-sectional gap between empirical CDS spread and model CDS spread for sector healthcare using the CG model with an asset volatility estimator of 1000-day rolling window equity volatility

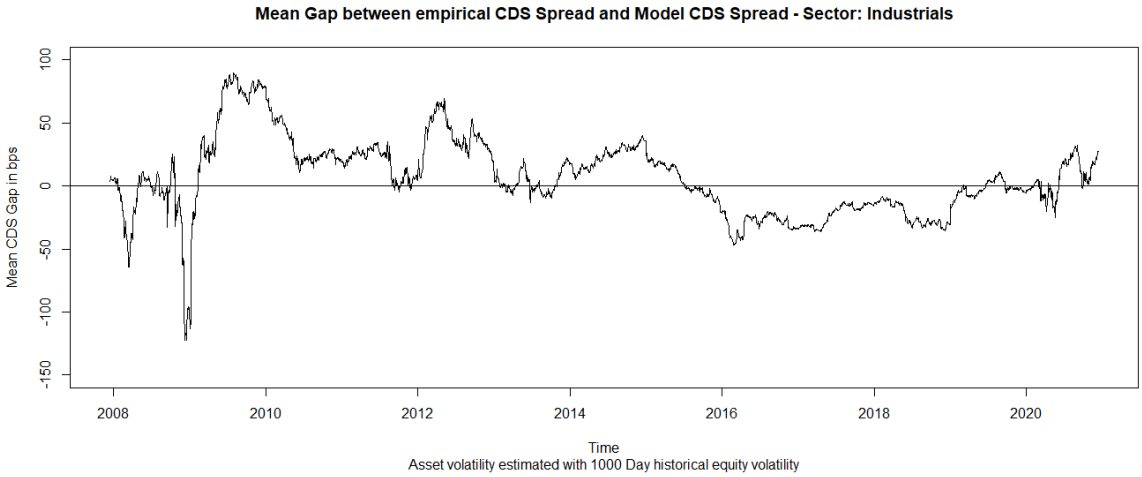

Figure 25: Estimated mean cross-sectional gap between empirical CDS spread and model CDS spread for sector industrials using the CG model with an asset volatility estimator of 1000-day rolling window equity volatility

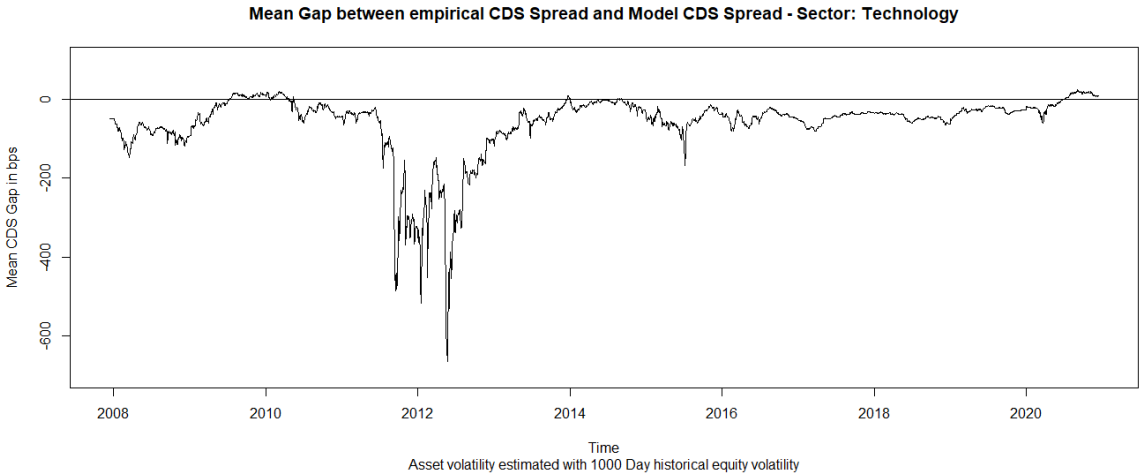

Figure 26: Estimated mean cross-sectional gap between empirical CDS spread and model CDS spread for sector technology using the CG model with an asset volatility estimator of 1000-day rolling window equity volatility

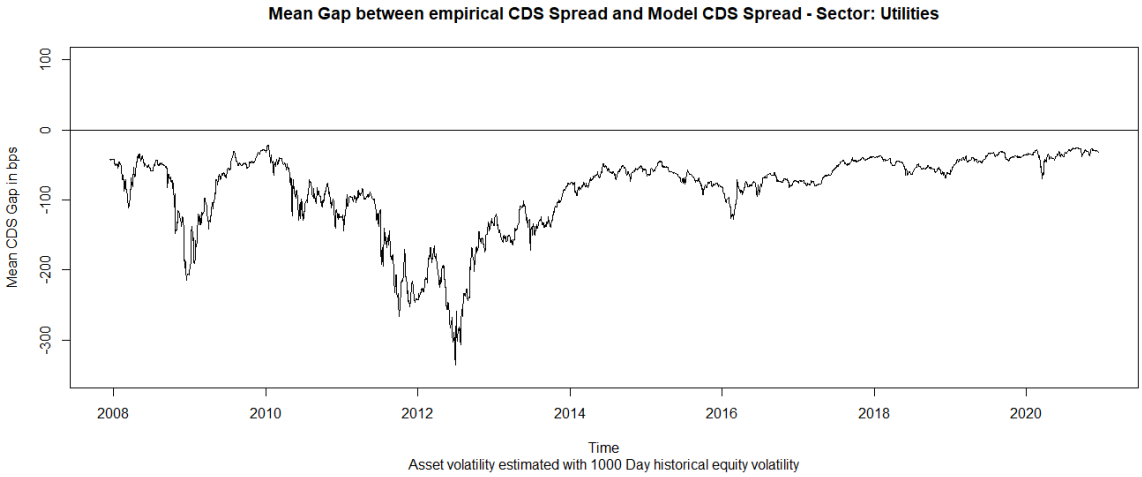

Figure 27: Estimated mean cross-sectional gap between empirical CDS spread and model CDS spread for sector utilities using the CG model with an asset volatility estimator of 1000-day rolling window equity volatility

B.4 Gap plots for option implied volatility estimation

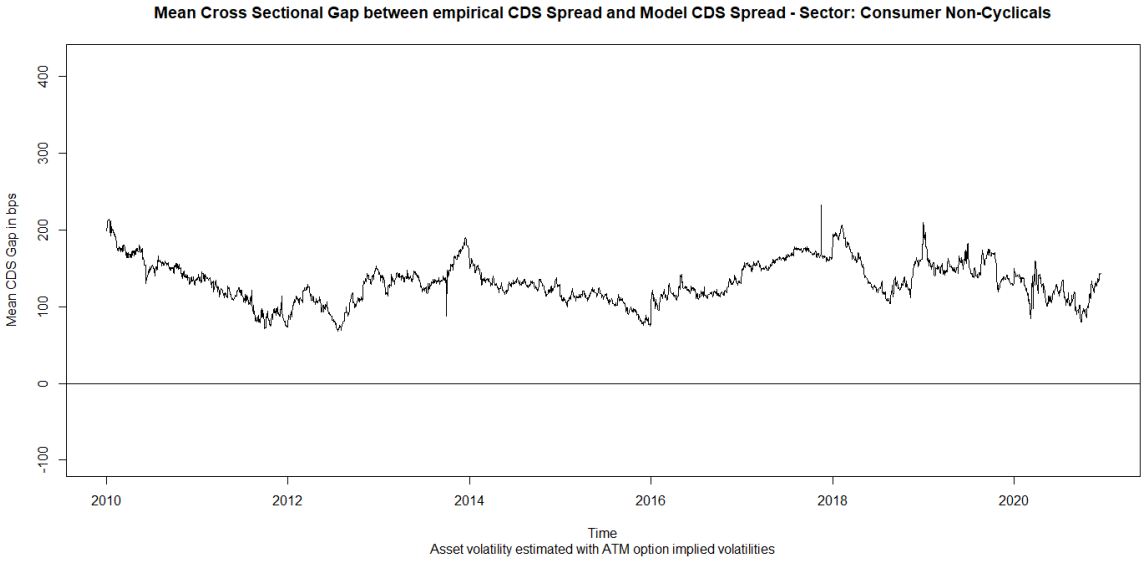

Figure 28: Estimated mean cross-sectional gap between empirical CDS spread and model CDS spread for non-cyclical sector using the CG model with an asset volatility estimator of one year at-the-money option implied volatility

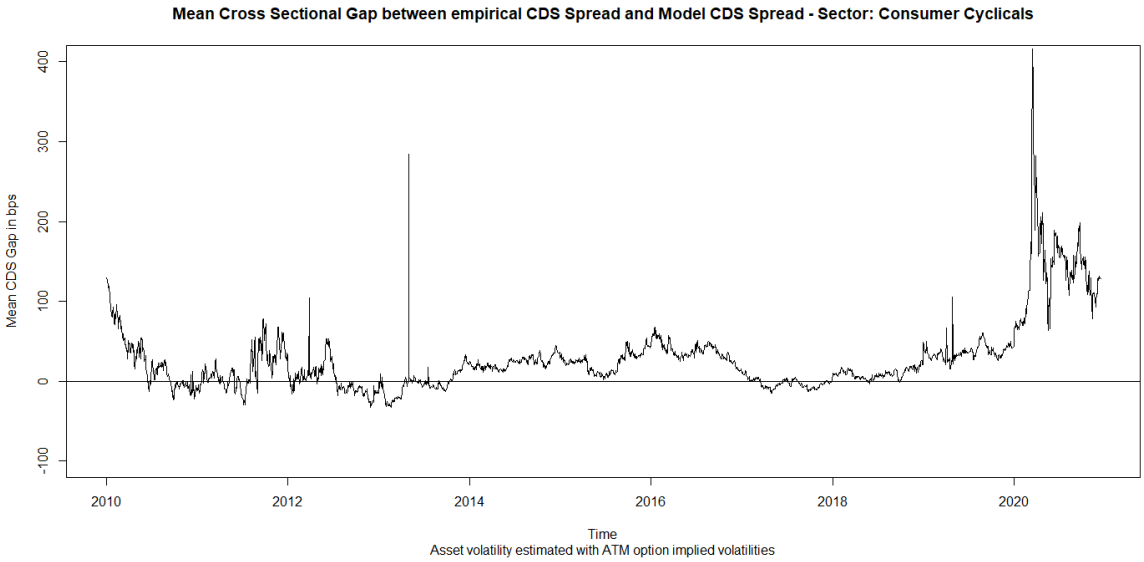

Figure 29: Estimated mean cross-sectional gap between empirical CDS spread and model CDS spread for cyclical sector using the CG model with an asset volatility estimator of one year at-the-money option implied volatility

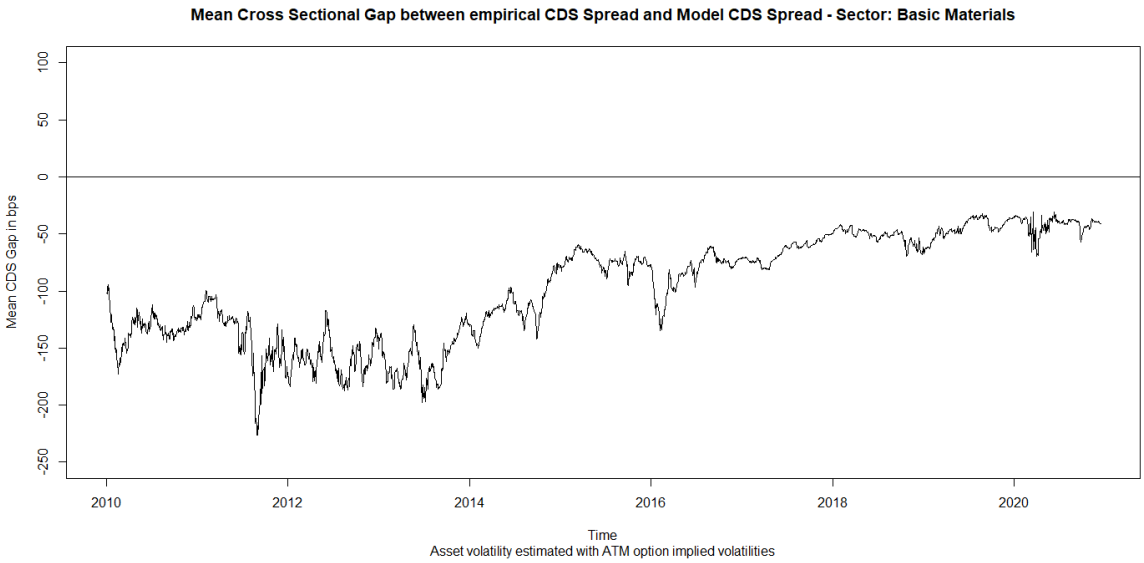

Figure 30: Estimated mean cross-sectional gap between empirical CDS spread and model CDS spread for sector basic materials using the CG model with an asset volatility estimator of one year at-the-money option implied volatility

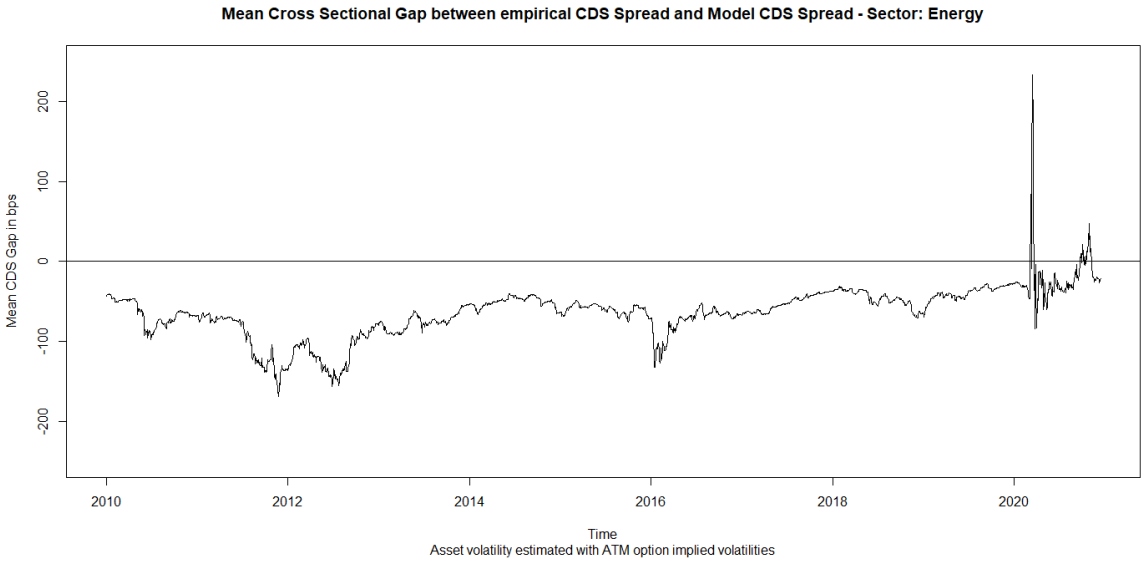

Figure 31: Estimated mean cross-sectional gap between empirical CDS spread and model CDS spread for sector energy using the CG model with an asset volatility estimator of one year at-the-money option implied volatility

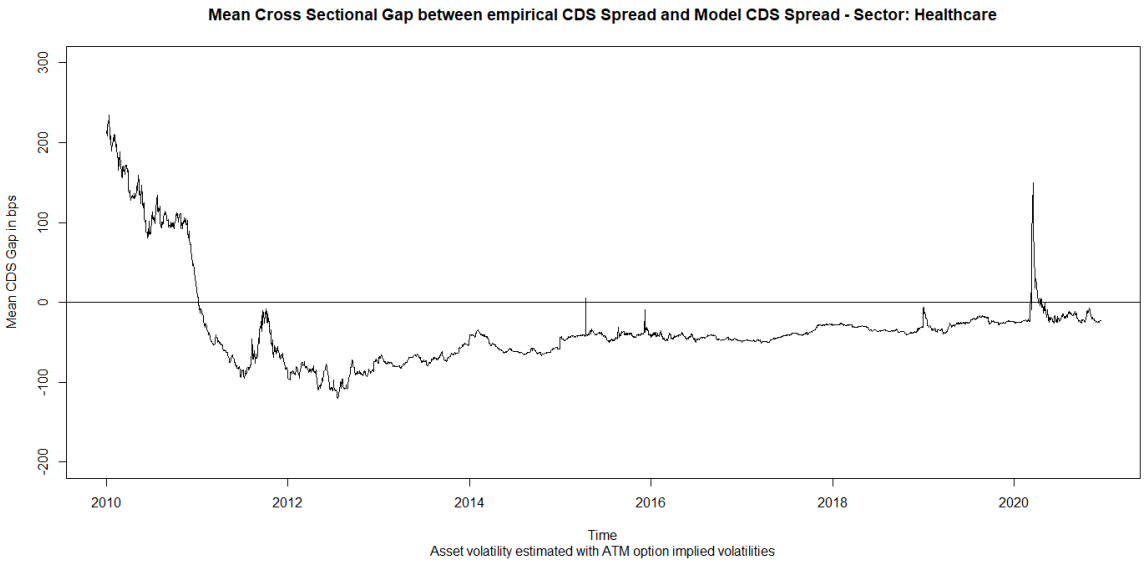

Figure 32: Estimated mean cross-sectional gap between empirical CDS spread and model CDS spread for sector healthcare using the CG model with an asset volatility estimator of one year at-the-money option implied volatility

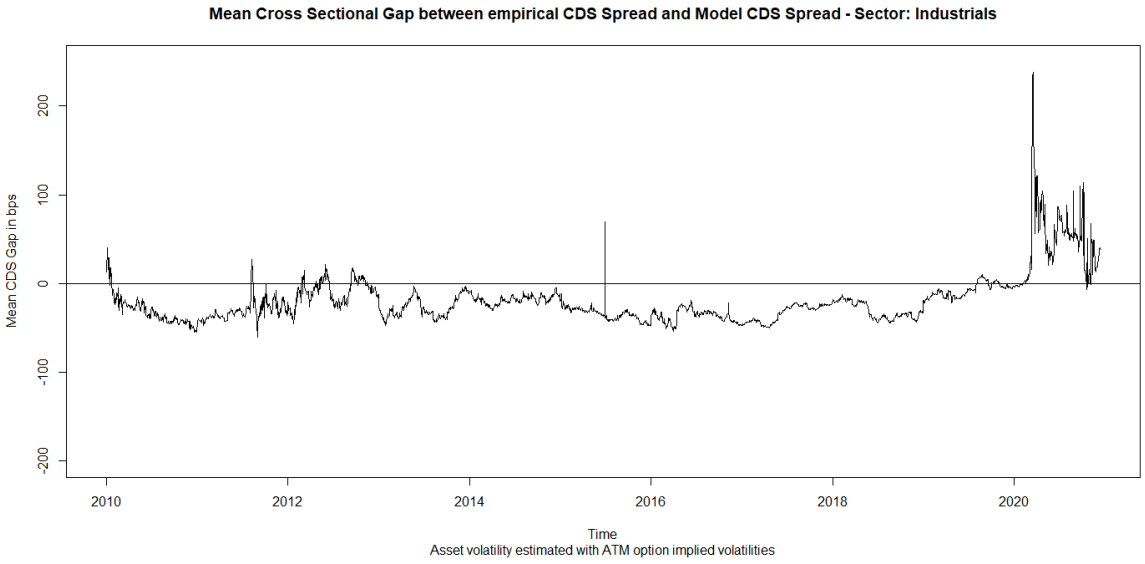

Figure 33: Estimated mean cross-sectional gap between empirical CDS spread and model CDS spread for sector industrials using the CG model with an asset volatility estimator of one year at-the-money option implied volatility

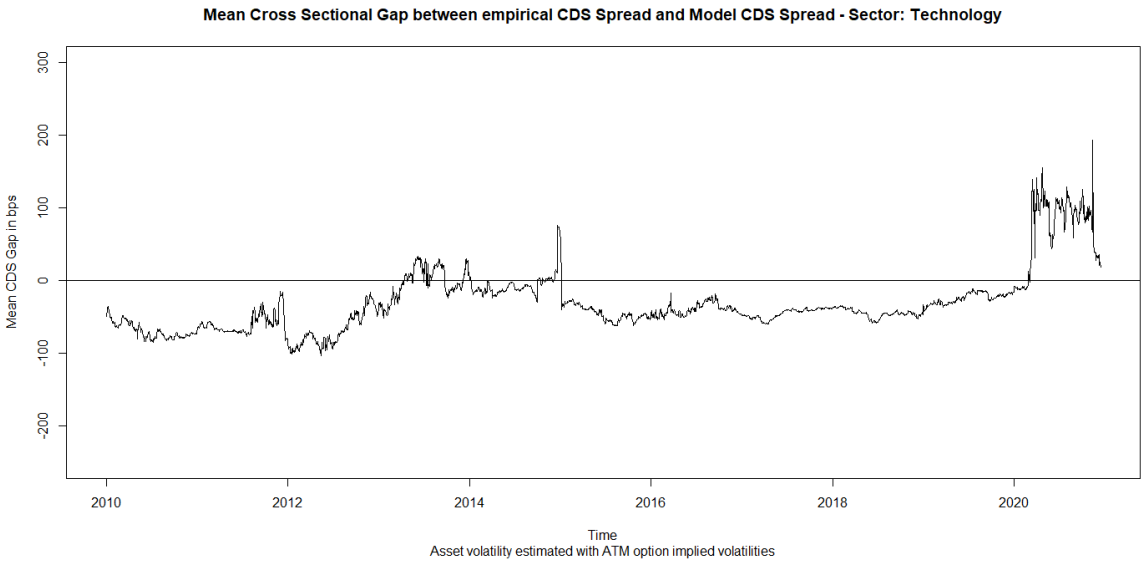

Figure 34: Estimated mean cross-sectional gap between empirical CDS spread and model CDS spread for sector technology using the CG model with an asset volatility estimator of one year at-the-money option implied volatility

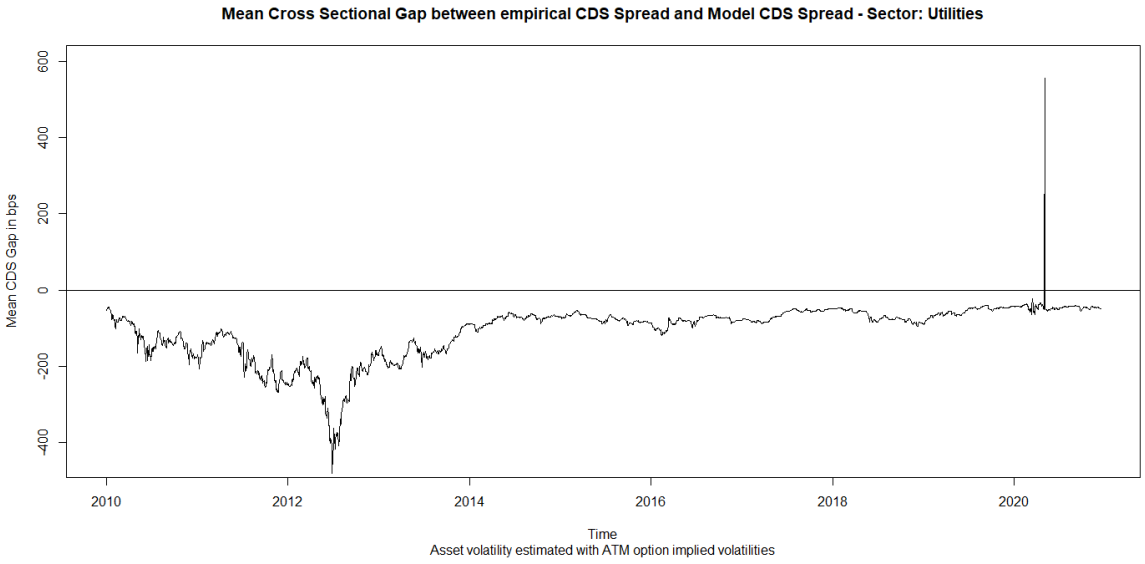

Figure 35: Estimated mean cross-sectional gap between empirical CDS spread and model CDS spread for sector utilities using the CG model with an asset volatility estimator of one year at-the-money option implied volatility

Appendix C Further Summary Statistics

C.1 Empirical CDS Spread Summary Statistics

Table 14: Empirical CDS Spread Summary Statistics

This table presents summary statistics for empirical CDS spread observations within my sample of reference entities. I classify my sample into 8 sectors and 5 time periods as follows. The sector classification is retrieved from Refinitiv Eikon and consists out of Consumer Non Cyclical, Consumer Cyclicals, Industrials, Utilities, Technology, Healthcare, Energy and Basicmaterials. I classify the following time periods: *Full Period* (14.12.2007 - 14.12.2020), *Financial Crisis* (14.12.2007 - 31.12.2009), *European Sovereign Debt Crisis* (01.01.2010 - 31.12.2013), *Tranquil Period* (01.01.2014 - 28.02.2020) and the *Corona Crisis* (01.03.2020 - 14.12.2020). I report the time-series means of the daily mean (*Mean*), standard deviation (*SD*), skewness (*Skew*), kurtosis (*Kurt*), minimum (*Min*), fifth percentile (*5%*), 25th percentile (*25%*), median (*Median*), 75th percentile (*75%*), 95th percentile (*95%*), and maximum (*Max*) values of the cross-sectional distribution of each variable. The column labeled *n* indicates the number of individual CDS spread observations within each sector.

	n	*Min*	*5%*	*25%*	*Mean*	*Median*	*75%*	*95%*	*Max*	*SD*	*Skew*	*Kurt*
Sector Consumer Non Cyclical: Cross-Sectional Distribution												
Full Period	3392	30.599	42.252	58.222	93.531	74.118	104.269	207.218	363.003	57.088	1.743	4.24
Financial Crisis	535	49.675	58.644	79.323	116.33	101.025	143.603	221.345	264.842	50.574	1.003	0.737
European Sovereign Debt Crisis	1043	54.559	62.212	74.824	91.101	85.792	104.818	134.709	155.612	21.929	0.659	0.048
Tranquil Period	1608	36.942	43.268	55.322	84.211	75.072	106.612	147.38	194.246	35.434	0.368	0.016
Corona Crisis	206	87.118	93.502	100.832	119.365	110.631	137.328	163.582	191.679	24.374	1.1	2.303
Sector Consumer Cyclicals: Cross-Sectional Distribution												
Full Period	3392	41.645	54.905	77.483	144.097	110.999	177.966	339.483	633.287	96.874	1.816	4.524
Financial Crisis	535	73.783	98.446	144.219	248.237	222.389	328.711	492.727	592.636	126.493	0.829	0.144
European Sovereign Debt Crisis	1043	83.158	101.385	129.08	175.373	170.668	209.451	283.975	336.365	56.899	0.683	0.087
Tranquil Period	1608	44.927	51.94	66.104	84.918	81.417	100.192	129.934	177.785	24.678	0.609	0.426
Corona Crisis	206	94.917	107.497	136.666	177.229	165.192	214.277	275.828	352.008	55.425	0.923	0.696
Sector Industrials: Cross-Sectional Distribution												
Full Period	3392	31.865	42.855	61.727	97.664	80.336	114.956	215.877	386.843	58.017	2.007	6.42
Financial Crisis	535	46.769	55.875	73.617	117.657	97.865	149.143	249.448	322.051	62.184	1.373	2.009
European Sovereign Debt Crisis	1043	59.336	70.505	92.688	128.839	128.558	153.905	204.687	237.898	42.306	0.396	0.314
Tranquil Period	1608	35.874	42.053	55.552	69.413	68.182	79.651	107.923	128.523	19.222	0.552	0.401
Corona Crisis	206	53.968	74.771	95.859	108.418	105.513	119.902	152.677	182.455	24.842	1.27	2.549
Sector Utilities: Cross-Sectional Distribution												
Full Period	3392	29.776	39.93	58.453	110.382	81.949	139.831	283.552	469.64	78.698	1.703	3.853
Financial Crisis	535	42.716	51.104	64.279	108.465	87.183	140.12	239.975	287.569	59.339	1.035	0.54
European Sovereign Debt Crisis	1043	54.794	82.127	133.242	184.463	168.005	233.197	337.72	428.971	76.817	0.938	0.872
Tranquil Period	1608	32.96	40.437	52.346	71.242	72.031	85.768	108.205	152.674	22.201	0.458	0.279
Corona Crisis	206	35.497	36.86	39.295	45.802	43.591	49.482	62.858	81.807	9.065	1.846	4.277

Empirical CDS Spread Summary Statistics (cont.)

	n	*Min*	*5%*	*25%*	*Mean*	*Median*	*75%*	*95%*	*Max*	*SD*	*Skew*	*Kurt*
Sector Technology: Cross-Sectional Distribution												
Full Period	3392	31.368	40.488	59.71	142.043	96.75	160.918	452.206	961.372	134.741	1.488	3.218
Financial Crisis	535	48.6	57.173	67.414	93.204	89.465	111.01	150.4	183.588	29.772	0.71	0.005
European Sovereign Debt Crisis	1043	62.039	75.458	135.424	259.186	192.043	377.946	589.095	935.978	170.895	0.712	0.02
Tranquil Period	1608	32.926	39.461	60.758	93.724	85.926	120.02	176.845	285.24	43.108	0.502	0.187
Corona Crisis	206	34.3	35.231	40.317	52.952	44.969	63.198	92.883	116.942	19.154	1.788	3.641
Sector Healthcare: Cross-Sectional Distribution												
Full Period	3392	18.883	24.182	39.339	61.561	51.679	78.839	119.038	197.731	32.168	1.55	3.576
Financial Crisis	535	44.986	51.523	66.535	94.517	78.857	121.433	172.372	196.667	39.762	0.906	0.231
European Sovereign Debt Crisis	1043	47.596	56.878	66.188	80.88	78.416	93.341	113.872	140.639	18.528	0.68	0.105
Tranquil Period	1608	20.647	23.869	33.519	41.283	41.04	48.468	61.573	71.413	11.122	0.221	0.016
Corona Crisis	206	24.359	26.907	30.055	36.456	35.229	39.059	54.337	68.264	8.757	1.561	3.348
Sector Energy: Cross-Sectional Distribution												
Full Period	3392	21.033	32.742	45.614	70.219	62.983	80.599	137.063	336.03	38.331	2.526	12.961
Financial Crisis	535	21.333	25.333	38.75	53.768	46.667	67.458	96.081	129.722	23.165	1.251	1.473
European Sovereign Debt Crisis	1043	34.823	44.516	66.206	93.947	81.921	109.643	179.876	322.843	47.372	1.572	4.851
Tranquil Period	1608	26.11	33.382	43.405	58.263	54.348	69.644	90.326	166.28	20.965	1.709	5.088
Corona Crisis	206	51.68	56.451	62.642	86.135	73.112	97.443	157.847	197.983	33.109	1.391	1.145
Sector Basicmaterials: Cross-Sectional Distribution												
Full Period	3392	32.425	39.598	58.553	111.802	101.34	155.004	229.294	320.814	62.629	1.142	1.309
Financial Crisis	535	62.438	89.892	146.253	176.736	168.569	210.082	266.108	296.818	52.17	0.346	0.113
European Sovereign Debt Crisis	1043	91.727	104.816	127.228	157.595	152.994	179.647	231.031	293.304	39.43	0.929	0.759
Tranquil Period	1608	32.488	38.434	48.492	68.272	63.414	80.133	117.643	164.353	25.612	1.086	2.129
Corona Crisis	206	34.887	36.549	40.421	51.083	45.065	55.06	87.443	113.883	16.844	1.928	3.45

C.2 Model CDS Spread Summary Statistics

C.2.1 CG Model with 1000-Day Historical Equity Volatility

Table 15: CG Model Spread Summary Statistics - Equity Volatility Specification

This table presents summary statistics for CreditGrades Model CDS spread observations within my sample of reference entities. The CG model is calibrated with 1000-day rolling windows equity volatility. I classify my sample into 8 sectors and 5 time periods as follows. The sector classification is retrieved from Refinitiv Eikon and consists out of Consumer Non Cyclical, Consumer Cyclicals, Industrials, Utilities, Technology, Healthcare, Energy and Basicmaterials. I classify the following time periods: *Full Period* (14.12.2007 - 14.12.2020), *Financial Crisis* (14.12.2007 - 31.12.2009), *European Sovereign Debt Crisis* (01.01.2010 - 31.12.2013), *Tranquil Period* (01.01.2014 - 28.02.2020) and the *Corona Crisis* (01.03.2020 - 14.12.2020). I report the time-series means of the daily mean (*Mean*), standard deviation (*SD*), skewness (*Skew*), kurtosis (*Kurt*), minimum (*Min*), fifth percentile (*5%*), 25th percentile (*25%*), median (*Median*), 75th percentile (*75%*), 95th percentile (*95%*), and maximum (*Max*) values of the cross-sectional distribution of each variable. The column labeled *n* indicates the number of individual CDS spread observations within each sector.

	n	*Min*	*5%*	*25%*	*Mean*	*Median*	*75%*	*95%*	*Max*	*SD*	*Skew*	*Kurt*
Sector Consumer Non Cyclical: Cross-Sectional Distribution												
Full Period	3392	104.72	118.331	140.423	170.866	155.205	186.368	282.366	342.419	49.242	1.689	2.316
Financial Crisis	535	180.783	185.468	197.656	224.127	228.131	245.669	266.015	280.336	26.854	0.123	1.395
European Sovereign Debt Crisis	1043	118.908	128.89	145.763	165.836	162.665	181.895	210.745	229.965	26.106	0.344	0.903
Tranquil Period	1608	105.679	120.629	137.873	156.866	151.294	172.318	207.091	234.058	27.501	1.188	1.098
Corona Crisis	206	138.243	143.811	150.571	167.285	163.317	181.043	204.133	219.728	20.121	0.077	1.785
Sector Consumer Cyclicals: Cross-Sectional Distribution												
Full Period	3392	30.148	44.323	81.504	222.017	153	351.387	569.457	742.191	176.227	1.412	2.028
Financial Crisis	535	97.255	117.862	157.99	335.521	372.133	468.187	588.431	656.365	168.654	0.033	1.329
European Sovereign Debt Crisis	1043	146.408	163.581	250.494	349.616	370.097	437.455	506.937	559.373	116.344	0.044	0.811
Tranquil Period	1608	42.732	49.455	62.552	97.54	91.228	118.495	175.904	240.744	43.098	1.679	4.48
Corona Crisis	206	149.053	191.7	227.337	252.833	248.667	280.243	324.512	361.48	43.451	0.308	1.52
Sector Industrials: Cross-Sectional Distribution												
Full Period	3392	14.257	21.262	40.478	104.259	76.269	163.959	266.021	352.523	80.028	1.123	0.581
Financial Crisis	535	54.178	62.159	75.102	135.007	149.494	179.998	214.615	237.865	54.693	0.009	1.26
European Sovereign Debt Crisis	1043	62.249	69.55	93.119	152.193	161.355	199.161	243.742	268.575	60.032	0.073	0.999
Tranquil Period	1608	17.216	22.848	33.302	61.324	51.365	86.247	121.857	142.224	33.489	1.216	1.358
Corona Crisis	206	56.68	81.999	103.634	116.853	116.77	131.852	152.333	166.377	22.804	0.382	1.571
Sector Utilities: Cross-Sectional Distribution												
Full Period	3392	0.265	1.056	4.975	23.781	14.804	41.12	66.101	106.702	22.95	0.981	0.532
Financial Crisis	535	5.952	7.44	11.214	31.768	31.209	46.183	65.138	77.845	20.596	0.254	1.055
European Sovereign Debt Crisis	1043	18.019	20.311	27.716	40.893	40.017	50.227	69.916	82.758	15.413	0.509	0.209
Tranquil Period	1608	2.347	4.239	6.911	11.636	10.692	14.984	22.997	30.985	6.099	0.836	0.399
Corona Crisis	206	6.382	9.065	10.325	11.204	11.089	12.154	13.81	15.246	1.625	0.141	2.157

CG Model Spread Summary Statistics - Equity Volatility Specification (cont.)

	n	*Min*	*5%*	*25%*	*Mean*	*Median*	*75%*	*95%*	*Max*	*SD*	*Skew*	*Kurt*
Sector Technology: Cross-Sectional Distribution												
Full Period	3392	0.728	3.208	18.216	80.363	63.608	132.861	223.099	352.761	72.914	1.139	1.379
Financial Crisis	535	1.79	2.448	7.369	41.775	44.374	71.822	84.466	99.19	32.121	0.004	1.598
European Sovereign Debt Crisis	1043	49.156	61.275	95.98	143.993	144.121	181.901	245.739	321.379	56.359	0.105	0.684
Tranquil Period	1608	4.625	6.449	17.686	55.535	47.817	89.871	122.416	152.267	40.671	0.708	0.243
Corona Crisis	206	23.784	39.36	46.03	52.224	51.226	58.269	67.858	73.649	9.473	0.225	1.161
Sector Healthcare: Cross-Sectional Distribution												
Full Period	3392	0.274	0.615	1.451	46.951	10.527	34.708	234.242	290.522	76.282	2.063	4.355
Financial Crisis	535	100.739	104.323	121.599	168.85	174.515	212.539	237.481	253.921	47.291	0.199	1.369
European Sovereign Debt Crisis	1043	6.26	9.107	15.25	57.138	40.707	79.133	149.86	177.164	51.14	0.377	0.877
Tranquil Period	1608	0.275	0.444	1.247	3.954	2.099	5.596	12.042	17.494	4.061	1.679	2.42
Corona Crisis	206	5.822	9.879	11.122	14.413	13.952	18.137	21.903	24.394	4.132	0.638	0.53
Sector Energy: Cross-Sectional Distribution												
Full Period	3392	0	0.002	0.951	6.685	2.761	7.053	29.375	77.473	10.921	3.113	11.474
Financial Crisis	535	0	0	0.001	2.027	1.335	4.002	5.158	6.54	2.057	0.317	1.424
European Sovereign Debt Crisis	1043	0.553	0.681	1.27	8.721	10.415	12.912	19.302	26.062	6.377	0.123	1.048
Tranquil Period	1608	0.15	0.244	1.048	2.426	2.372	3.291	5.356	7.419	1.603	0.617	0.155
Corona Crisis	206	1.764	22.669	31.134	41.724	38.767	53.234	67.768	77.473	15.572	0.012	0.337
Sector Basicmaterials: Cross-Sectional Distribution												
Full Period	3392	0.412	0.996	5.386	36.116	14.764	68.446	113.653	144.967	38.841	1.115	0.059
Financial Crisis	535	1.561	2.466	8.077	46.411	44.831	83.113	96.929	111.636	37.239	0.118	1.573
European Sovereign Debt Crisis	1043	26.3	31.212	57.457	76.541	72.248	98.422	125.064	141.185	28.465	0.226	0.629
Tranquil Period	1608	0.642	1.057	2.212	9.621	6.683	12.479	29.285	37.02	9.339	1.461	1.096
Corona Crisis	206	5.013	7.678	9.279	11.522	11.981	13.193	16.111	19.521	2.77	0.4	1.951

C.2.2 CG Model with Option Implied Volatility Estimation

Table 16: CG Model Spread Summary Statistics - Option Implied Volatility Specification

This table presents summary statistics for CG model spreads, estimated with option-implied volatility extracted from one year at-the-money put and call options written on my sample of reference entities. I classify my sample into 8 sectors and 5 time periods as follows. The sector classification is retrieved from Refinitiv Eikon and consists out of Consumer Non Cyclical, Consumer Cyclicals, Industrials, Utilities, Technology, Healthcare, Energy and Basicmaterials. I classify the following time periods: *Full Period* (01.01.2010 - 14.12.2020), *European Sovereign Debt Crisis* (01.01.2010 - 31.12.2013), *Tranquil Period* (01.01.2014 - 28.02.2020) and the *Corona Crisis* (01.03.2020 - 14.12.2020). I report the time-series means of the daily mean (*Mean*), standard deviation (*SD*), skewness (*Skew*), kurtosis (*Kurt*), minimum (*Min*), fifth percentile (*5%*), 25th percentile (*25%*), median (*Median*), 75th percentile (*75%*), 95th percentile (*95%*), and maximum (*Max*) values of the cross-sectional distribution of each variable. The column labeled *n* indicates the number of daily individual CDS spread estimations within each sector.

	n	*Min*	*5%*	*25%*	*Mean*	*Median*	*75%*	*95%*	*Max*	*SD*	*Skew*	*Kurt*
Sector Consumer Non Cyclical: Cross-Sectional Distribution												
Full Period	2857	145.782	169.853	193.712	225.589	210.225	243.036	329.757	451.282	51.648	6.936	118.362
European Sovereign Debt Crisis	1043	165.54	185.221	201.751	225.188	217.861	244.127	283.507	325.394	32.042	2.692	12.722
Tranquil Period	1608	146.029	168.131	193.415	221.895	212.252	252.484	293.434	384.907	42.241	4.503	68.306
Corona Crisis	206	200.85	212.624	223.966	256.455	252.657	276.71	328.233	392.606	39.801	3.018	15.282
Sector Consumer Cyclicals: Cross-Sectional Distribution												
Full Period	2857	40.183	53.311	83.675	154.204	121.848	190.881	389.282	954.278	110.014	3.484	23.701
European Sovereign Debt Crisis	1043	82.779	102.401	132.294	192.233	172.046	234.089	348.123	701.738	81.423	2.559	19.611
Tranquil Period	1608	40.405	50.788	69.017	104.919	101.517	130.921	171.458	351.408	42.672	4.351	53.583
Corona Crisis	206	174.706	221.083	284.931	346.37	323.778	402.421	524.848	736.806	100.455	1.349	3.538
Sector Industrials: Cross-Sectional Distribution												
Full Period	2857	16.104	22.133	32.066	72.798	48.131	92.32	227.292	616.615	69.359	8.972	350.192
European Sovereign Debt Crisis	1043	27.388	38.742	52.236	99.553	97.62	132.546	191.684	259.292	51.116	1.374	2.499
Tranquil Period	1608	16.108	20.96	27.825	42.029	36.357	51.627	77.479	226.245	21.366	7.027	209.928
Corona Crisis	206	57.822	84.573	131.428	177.504	167.396	205.248	287.484	505.011	73.285	2.636	12.771
Sector Utilities: Cross-Sectional Distribution												
Full Period	2857	0.017	0.433	2.337	15.905	5.802	23.311	57.278	698.396	27.682	15.134	684.802
European Sovereign Debt Crisis	1043	7.425	10.553	19.103	35.404	30.857	46.459	76.401	118.678	20.748	1.075	1.242
Tranquil Period	1608	0.017	0.329	1.512	4.01	3.522	5.57	10.234	20.273	3.307	1.407	3.114
Corona Crisis	206	0.823	1.347	2.353	10.031	3.702	6.747	23.785	639.986	47.432	6.554	71.308

CG Model Spread Summary Statistics - Option Implied Volatility Specification (cont.)

	n	*Min*	*5%*	*25%*	*Mean*	*Median*	*75%*	*95%*	*Max*	*SD*	*Skew*	*Kurt*
Sector Technology: Cross-Sectional Distribution												
Full Period	2857	1.006	2.623	9.951	42.842	20.35	61.334	168.036	414.66	56.736	2.269	7.034
European Sovereign Debt Crisis	1043	2.476	4.129	10.52	49.959	34.231	84.928	129.291	161.922	43.548	1.807	7.225
Tranquil Period	1608	2.824	4.5	7.683	26.692	14.992	29.117	85.504	215.173	28.999	2.098	6.713
Corona Crisis	206	36.408	64.133	97.73	132.872	121.713	162.112	228.938	353.484	53.462	1.198	2.433
Sector Healthcare: Cross-Sectional Distribution												
Full Period	2857	0.298	1.031	3.04	42.056	14.009	37.921	247.061	403.265	76.601	3.449	18.374
European Sovereign Debt Crisis	1043	9.383	12.578	21.402	95.895	53.495	123.911	291.083	400.831	103.809	1.683	5.034
Tranquil Period	1608	0.298	0.699	1.844	8.461	3.899	11.706	30.516	83.302	10.337	3.519	23.323
Corona Crisis	206	10.611	12.806	17.268	31.7	22.209	30.691	81.095	231.156	31.815	4.911	31.503
Sector Energy: Cross-Sectional Distribution												
Full Period	2857	0.006	0.039	0.154	5.91	0.396	2.107	33.843	391.815	21.864	9.195	122.38
European Sovereign Debt Crisis	1043	0.025	0.056	0.12	0.927	0.259	0.6	4.416	15.13	1.961	4.233	21.194
Tranquil Period	1608	0.006	0.019	0.176	2.02	0.418	2.008	9.213	48.258	4.024	4.378	28.361
Corona Crisis	206	4.331	21.999	30.837	61.504	45.766	72.4	129.336	391.815	55.151	3.33	13.929
Sector Basicmaterials: Cross-Sectional Distribution												
Full Period	2857	0.033	0.213	3.299	20.145	8.504	26.44	77.045	179.712	26.997	3.775	26.583
European Sovereign Debt Crisis	1043	8.648	12.099	22.39	44.647	36.307	59.485	105.874	171.138	29.739	2.263	8.998
Tranquil Period	1608	0.033	0.138	0.801	5.614	4.395	7.366	17.264	42.34	5.936	4.133	37.717
Corona Crisis	206	0.444	0.802	1.738	9.513	3.277	12.085	33.203	87.014	13.213	5.45	40.708

Appendix D Autocorrelation Anaylsis

Table 17: Autocorrelation Analysis

This table reports Ljung-Box test statistics for each obligor in the sample of emprirical and CG model spreads both estimated with historical volatility and option implied volatility. LB(5) indicates the Ljung-Box statistic with 5 lags and LB(10) with 10 lags respectively. *, ** , and *** indicate significance at the 10%, 5%, and 1% level. For each specification I report the total number of significant variables defined to equal the 5% significance level or higher.

Obligor	Empirical Spreads		CG Model Spreads (HV)		CG Model Spreads (IV)	
	LB(5)	LB(10)	LB(5)	LB(10)	LB(5)	LB(10)
Air Liquide	7.41	24.50***	10.89**	23.85***	17.04***	29.55***
Akzo Nobel	22.03***	43.56***	9.99*	22.46**	25.94***	45.32***
BASF	41.79***	75.19***	20.14***	35.81***		
Solvay	14.49**	20.45**	2.66	5.16		
Stora Enso	48.10***	58.01***	9.74*	30.53***	19.32***	29.07***
UPM Kymmene	38.48***	50.00***	20.32***	38.69***	13.65***	36.76***
Vivendi	11.72**	38.04***	5.84	12.79	7.65	14.03
Peugeot	7.98	18.11*	2.04	8.60		
Electrolux	41.49***	65.71***	16.93***	20.56**	12.75**	17.19**
Volvo	14.03**	20.46**	9.78*	16.99*	23.71***	30.56***
BMW	26.24***	57.24***	24.84***	52.82		
Cie de Saint Gobain	30.18***	44.39***	20.78***	38.88***	30.10***	35.99***
Continental	71.91***	119.67***	55.79***	70.60***	52.65***	71.48***
Daimler	38.79***	68.71***	13.04**	28.64***		
Renault	12.23**	29.68***	29.27***	38.92***	4.13**	25.44***
Valeo	14.57**	42.40***	21.87***	52.75***		
Volkswagen	32.16***	48.64***	18.23***	22.19**	7.66***	55.80***
Accor	55.38***	66.92***	11.36**	24.13***		
Compass Group	12.45**	30.54***	23.11***	36.86***		
ITV	22.40***	41.36***	12.03**	13.33	6.71	20.82**
Kingfisher	24.89***	56.76***	3.00	17.43**	14.34**	27.12***
Ceconomy	15.29***	41.28***	7.94	22.61**		
Marks & Spencer	10.50*	18.89**	92.82***	143.10***		
Next	23.35***	57.90***	74.94***	104.03***	56.95***	81.97***
Kering	36.46***	75.69***	27.08***	35.65***		
Pearson	69.06***	78.92***	17.27***	38.20***	44.73***	64.29***
Publicis Groupe	35.27***	37.56***	30.16***	52.84***	17.13***	32.03***
Sodexo	6.87	23.20**	44.93***	93.60***	8.73	15.98
TUI	19.03***	49.19***	28.86***	52.86***	27.53***	59.01
BP	99.42***	126.42***	52.35***	67.42***		
Eni	9.44*	17.40*	26.90***	34.89***	8.89	17.64*
Totalenergies	14.33**	17.47*	32.73***	49.27***	4.87	13.01
Bayer	9.68*	12.60	4.25	31.85***		
Koninkluk Philips	10.45*	26.98***	7.32	25.51***	20.16***	30.49***
Astrazeneca	8.56	24.65***	13.25**	47.56***		
Fresenius	16.77***	30.12***	3.30	7.95	4.73	21.54**
Glaxosmithkline	27.20***	40.01***	15.03**	20.94**		
Merck	15.64***	23.28***	4.24	12.60	14.67**	24.65***
Novartis	18.39***	30.72***	49.7	53.78		
Airbus	61.14***	85.90***	5.04	17.89*	49.66***	71.77***
BAE Systems	32.08***	37.87***	15.78***	25.35***		
Bouygues	18.24***	25.77***	7.07	14.94	10.24*	19.67**
Finmeccanica	28.12***	37.56***	20.52***	26.76***	17.68***	27.89***
Metso Oyji	118.49***	163.54***	49.53***	88.85***		
Rolls Royce	33.80***	66.33***	83.31***	122.94***	41.71***	83.22***
Vinci	35.35***	55.25***	22.98***	38.67***	8.47	21.39**
Relx	104.85***	114.25***	31.69***	55.01***	13.30**	16.06*
Securitas	30.20***	55.73***	10.24*	16.21*	15.58***	23.27***
Wolters Kluwer	20.18***	49.56***	13.71**	48.52***	13.13**	24.20***
PostNL	2.81	17.878*	6.94	28.433***		
Unilever	8.09	24.87***	2.64	12.01	16.68***	25.41***
British American Tobacco	7.71	33.90***	10.8*	20.19**		
Diageo	27.88***	47.83***	13.66**	37.76***	10.01*	22.12**
Imperial Brands	62.12***	82.45***	4.76	17.84*	36.28***	41.41***
Pernod Ricard	64.86***	73.50***	15.707***	40.79***	16.08***	45.40***
Swedish Match	37.19***	71.75***	18.31***	23.94***	14.91**	19.87**
Tesco	18.31***	30.76***	15.13***	20.55**		

Autocorrelation Analysis (cont.)

Obligor	Empirical Spreads		CG Model Spreads (HV)		CG Model Spreads (IV)	
	LB(5)	LB(10)	LB(5)	LB(10)	LB(5)	LB(10)
Siemens	34.97***	59.58***	26.83***	41.81***		
Kon Ahold	10.50*	30.71***	15.29***	31.77***	7.89	15.04
Casino Guipchn	18.85***	35.09***	9.65*	21.79**	20.26***	38.84***
Carrefour	2.76	15.29	10.92*	30.83***	4.53	17.81*
Safeway	5.78	15.84	43.75***	51.99***	13.23**	28.42***
Smiths Group	22.24***	43.89***	18.20***	26.03***		
Deutsche Telekom	2.93	16.15*	18.88***	23.92***		
Orange	7.09	18.35**	3.56	12.84	6.53	16.37*
Hellenic Telecom	28.81***	51.79***	36.93***	63.53***		
Telekom Austria	5.38	26.78***	9.44*	13.78	17.94***	21.53**
Vodafone	19.51***	42.73***	9.66*	37.15***	6.29	12.85
ENBW	14.22**	31.670***	5.58	12.98		
EDP Energias	6.74	23.90***	13.25**	21.12**		
Enel	16.79***	69.76***	16.80***	26.65***	4.07	19.37**
E.ON.	8.43	12.31	3.79	15.40		
Iberdrola	20.68***	29.21***	7.58	22.11**	24.22***	33.85***
National Grid	5.66	14.92	20.16***	42.62***		
Naturgy Energy	8.64	20.13**	26.61***	29.66***	21.55***	28.44***
No. of significant variables	54	65	47	57	32	36
Share of significant variables	72%	87%	63%	76%	70%	78%

Appendix E Diagnostic Statistics

This section reports diagnostic statistics for the panel regressions performed in chapter 6. Table 18 shows test statistics and p-values for the test by Levin et al. (2002), assessing unit roots in panel data, whereas table 19 depicts estimated Variance Inflation Factors for all independent variables to control for possible multicollinearity, indicated by VIF values above 3.

Table 18: Diagnostic Statistics of Panel Regressions

This table reports the test by Levin et al. (2002) with four number of lags commonly recommended to test for the unit root hypothesis in panel regression variables. The Null defines non-stationarity, whereas the alternative hypothesis defines stationarity. I report the test statistic as well as the p-value for each variable used in chapter 6.

Variable	Z-Value (Test Statistic)	P-Value
Dependent Variables		
△ Gap (5 year tenor)	−227.5	0
△ Gap (1 year tenor)	−213.68	0
△ Gap (10 year tenor)	−241.22	0
△ CG spread (5 year tenor)	−229.64	0
△ CG spread (1 year tenor)	−197.44	0
△ CG spread (10 year tenor)	−197.44	0
△ Market spread (5 year tenor)	−200.1	0
△ Market spread (1 year tenor)	−203.36	0
△ Market spread (10 year tenor)	−226.51	0
Independent Variables		
△ Risk-free rate	−16.449	0
△ Slope of yield curve	3.3548	0.9996
△ VSTOXX	−326.19	0
△ CRI (5 year tenor)	−79.378	0
△ CRI (1 year tenor)	−90.036	0
△ CRI (10 year tenor)	−79.408	0
△ Slope of CRI	−112.92	0
△ Slope of CDS	−218.38	0
Illiquiditiy (Amihud (2002))	−83.227	0
Obligor return	−238.96	0
△ Obligor equity volatility	−112.67	0

Table 19: Variance Inflation Factors (VIF)

This table presents Variance Inflation Factors derived for each independent variable in panel regressions performed in my main regression analysis. Column *Regression Type* depicts the sector specific panel regression analyzed. All independent variables are listed from column 2 on wards, providing an overview of VIF values in the corresponding rows. The VIF is derived via the pooled panel approach, not interfering with the subsequent fixed effects estimation since only the relation between the independent variables are assessed.

Regression Type	Δ *Risk-free rate*	Δ *Slope of yield curve*	Δ *VSTOXX*	Δ *CRI*	Δ *Slope CRI*	Δ *Slope CDS*	*Obligor return*	Δ *Equity vol.*	*ILLIQ*
Panel A: Historical Volatility Specification									
Basicmaterials	1.15	1.05	1.76	2.06	1.43	1.06	1.52	1.19	1.09
Consumer Non-Cyclical	1.09	1.01	1.70	1.70	1.37	1.01	1.30	1.16	1.01
Consumer Cyclicals	1.09	1.02	1.55	1.74	1.36	1.01	1.35	1.06	1.02
Energy	1.12	1.02	2.26	2.15	1.46	1.34	1.97	1.22	1.05
Industrials	1.08	1.02	1.57	1.73	1.35	1.03	1.35	1.02	1.02
Technology	1.11	1.01	1.73	1.81	1.43	1.14	1.39	1.19	1.01
Utilities	1.14	1.02	1.96	2.10	1.48	1.09	1.60	1.31	1.03
Healthcare	1.12	1.02	1.78	1.70	1.37	1.04	1.35	1.17	1.01
Panel B: Option-Implied Volatility Specification									
Basicmaterials	1.03	1.03	1.80	1.96	1.17	1.13	1.57	1.12	1.05
Consumer Non-Cyclical	1.02	1.04	1.87	1.57	1.15	1.08	1.31	1.08	1.02
Consumer Cyclicals	1.02	1.02	1.76	1.53	1.14	1.08	1.28	1.02	1.01
Energy	1.12	1.02	2.26	2.15	1.46	1.34	1.97	1.22	1.05
Industrials	1.02	1.02	1.75	1.62	1.17	1.14	1.39	1.07	1.02
Technology	1.03	1.05	2.05	1.59	1.21	1.27	1.49	1.11	1.04
Utilities	1.05	1.04	1.88	2.02	1.24	1.38	1.19	1.18	1.07
Healthcare	1.06	1.06	2.15	2.02	1.25	1.2	2.17	1.25	1.05

Appendix F Counterparty Credit Risk Index (CRI)

This section of the appendix elucidates the composition of my counterparty credit risk index and the corresponding visual depiction of its value. Since I use weekly changes of the index value within my regression framework, there is no need to base this index to some reference year. Thus, the CRI resembles the equally weighted average of all 13 constituents closer assessed in table 20. The visual analysis of its index value is depicted in figure 36.

Table 20: Counterparty Credit Risk Index Constituents

This table gives an overview of the composition of the 13 largest CDS dealers selling European credit derivatives regarding the estimation es derivation of my counterparty credit risk index (CRI).

No	CDS Dealer	Geographical Location
1.	Deutsche Bank	Germany
2.	Commerzbank	Germany
3.	Barclays Bank	Great Britain
4.	J.P.Morgan Chase	North America
5.	Goldman Sachs	North America
6.	HSBC Bank	Great Britain
7.	Bank of America	North America
8.	BNP Paribas	France
9.	Citigroup	North America
10.	Credit Suisse Group	Switzerland
11.	UBS	Switzerland
12.	Morgan Stanley	North America
13.	Mizuho Bank	Japan

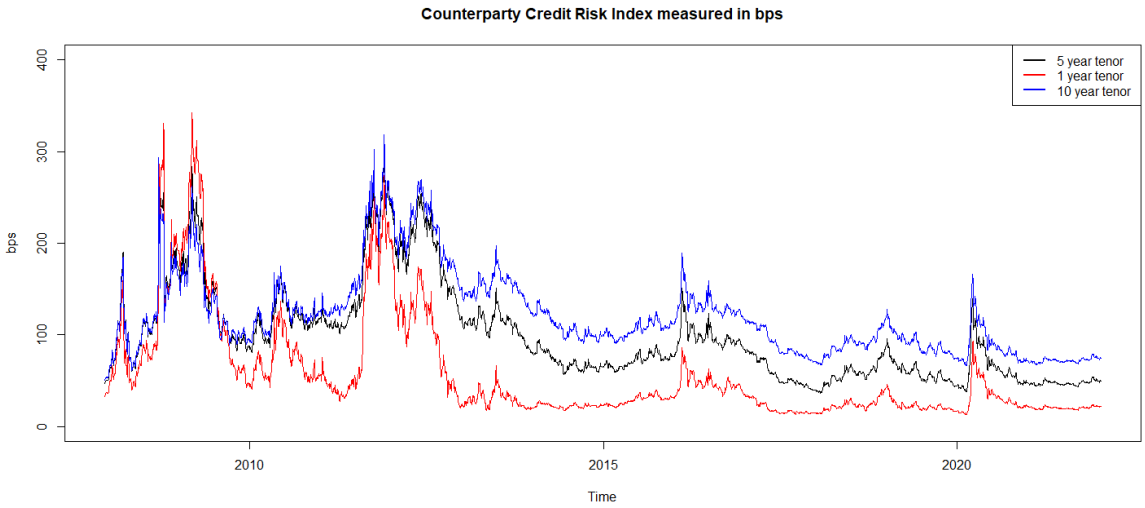

Figure 36: Estimated Counterparty Credit Risk Index for 5 year, 1 year and 10 year CDS mid-spreads for mean cross-sectional index constituents spreads as of table 20.

Appendix G Sector Specific Recovery Rates by Gambetti et al. (2019)

This section of the appendix displays the sector specific recovery rates retrieved from Gambetti et al. (2019) who publish sector recovery rates extracted from the proprietary Moody's Analytics Default and Recovery Database, which provides data from 1990 to the end of 2013.

Table 21: Sector Specific Recovery Rates

This table gives an overview of the sector specific recovery rates retrieved from Gambetti et al. (2019) who publish sector recovery rates extracted from the proprietary Moody's Analytics Default and Recovery Database, which provides data from 1990 to the end of 2013.

Sector	Recovery Rate
Consumer Non-Cyclicals	0.3386
Consumer Cyclicals	0.3386
Industrials	0.40
Utilities	0.76
Technology	0.1827
Healthcare	0.3386
Energy	0.3561
Basicmaterials	0.3177

Appendix H Robustness Panel Regression Output

This section of the appendix displays regression tables analog to section 6, controlling the rosbustenss of my findings for credit derivatives tenors of 1 and 10 years.

H.1 1 Year Tenor

Table 22: Determinants of the Gap between Market and Model CDS Spreads - Equity Volatility Calibration - 1 year tenor

This table reports the estimates from the panel regressions of weekly changes in the difference between market and CG model 1-year CDS mid spreads calibrated with 1000-day equity volatility of equation 39. (1) reports estimates for the sector Basicmaterials, (2) for the sector Consumer Non-Cyclicals, (3) Consumer Cyclicals, (4) Energy, (5) Industrials, (6) Technology, (7) Utilities and (8) Healthcare. Using equation 39, I regress the weekly gap for each obligor (in basis points) on a sector specific constant, the weekly change in the risk-free rate defined as the 3-month EURIBOR, the weekly change in the slope of the yield curve defined as the 12 month EURIBOR minus the one-month EURIBOR and the weekly change of the VSTOXX index, the weekly change in the CRI and the weekly delta of the CRI slope defined as the mid-spread of a 10-year tenor CRI index value minus the mid-spread of a one-year tenor CRI index value. Regarding firm specific variables, I consider the weekly obligor (company) return, weekly equity volatility, the weekly delta of the credit curve expressed as the CDS slope defined as the mid-spread of a 10-year tenor CDS minus the mid-spread of a one-year tenor CDS of the same reference entity and the illiquidity factor derived by Amihud (2002) calculated with equation (38) over one week horizons. I report Driscoll and Kraay (1998) standard errors adjusted for heteroskedaticity and spatial correlation. The adj. R^2 is corrected for the fixed effect and thus includes the full model. It provides a true estimation on how much variation is explained, since idiosyncratic fixed effects contribute to the explanatory power in the variation of the depended variable. The sample period covers December 2007 to December 2020.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
△ Risk free rate	1.421	1.758	−5.562	−0.777	−0.276	−1.244	0.030	−3.473
	(1.029)	(1.828)	(3.876)	(1.044)	(2.922)	(1.381)	(1.717)	(2.861)
△ Slope yield curve	−0.133*	0.079	−0.119	0.014	−0.101	−0.093	0.028	0.175
	(0.080)	(0.247)	(0.293)	(0.098)	(0.171)	(0.307)	(0.129)	(0.212)
△ VSTOXX	−0.269***	−0.039	−1.364***	0.040	−0.278	−0.742***	−0.324**	−0.328
	(0.100)	(0.318)	(0.412)	(0.161)	(0.206)	(0.266)	(0.136)	(0.463)
△ CRI	−0.288***	−0.466***	−0.017	−0.284***	−0.137	−0.553***	−0.439***	−0.176
	(0.060)	(0.096)	(0.167)	(0.057)	(0.094)	(0.119)	(0.059)	(0.126)
△ Slope CRI	−0.401**	−0.897***	−0.636	−0.592***	−0.301	−0.937***	−0.855***	−0.633***
	(0.195)	(0.220)	(0.389)	(0.115)	(0.199)	(0.192)	(0.128)	(0.211)
△ Slope CDS	0.702***	0.742***	1.068***	1.025***	0.290***	1.298***	1.131***	−0.102
	(0.197)	(0.129)	(0.048)	(0.241)	(0.110)	(0.074)	(0.136)	(0.374)
Company returns	−0.015	−5.529***	−11.035***	0.559***	−3.701***	−2.627***	−0.301	−3.416***
	(0.149)	(0.462)	(0.760)	(0.197)	(0.335)	(0.765)	(0.225)	(0.676)
Equity volatility	−0.065	−0.709***	0.326	−0.159***	−0.134	−0.468	−0.132	0.035
	(0.064)	(0.269)	(0.229)	(0.050)	(0.166)	(0.395)	(0.112)	(0.393)
ILLIQ	1,747.790	0.073	−0.168	−14.117	0.481	6.316	−0.134	−8.754
	(9,708.300)	(0.219)	(0.460)	(57.778)	(0.682)	(20.448)	(0.263)	(16.835)
△ Gap(-1)	−0.088*	−0.112***	0.005	−0.017	−0.083*	0.041	0.006	−0.032
	(0.047)	(0.037)	(0.024)	(0.094)	(0.043)	(0.054)	(0.046)	(0.066)
△ Gap(-2)	0.041	−0.075***	−0.009	0.119***	−0.027	−0.148**	−0.065	0.012
	(0.062)	(0.028)	(0.030)	(0.030)	(0.041)	(0.073)	(0.051)	(0.075)
Observations	4,056	8,788	15,548	2,028	7,436	3,380	4,732	4,732
Adjusted R^2	0.281	0.086	0.274	0.563	0.151	0.869	0.358	0.058

Significance Levels: *p<0.1; **p<0.05; ***p<0.01

Table 23: Determinants of the Gap between Market and Model CDS Spreads - Option-Implied Volatility Calibration - 1 year tenor

This table reports the estimates from the panel regressions of weekly changes in the difference between market and CG model 1-year CDS mid spreads calibrated with option-implied volatility extracted out of at-the-money put and call options with constant maturity of ine year in correspondance to equation 39. (1) reports estimates for the sector Basicmaterials, (2) for the sector Consumer Non-Cyclicals, (3) Consumer Cyclicals, (4) Energy, (5) Industrials, (6) Technology, (7) Utilities and (8) Healthcare. Using equation 39, I regress the weekly gap for each obligor (in basis points) on a sector specific constant, the weekly change in the risk-free rate defined as the 3-month EURIBOR, the weekly change in the slope of the yield curve defined as the 12 month EURIBOR minus the one-month EURIBOR, the weekly change of the VSTOXX index, the weekly change in the CRI and the weekly delta of the CRI slope defined as the mid-spread of a 10-year tenor CRI index value minus the mid-spread of a one-year tenor CRI index value.. Regarding firm specific variables, I consider the weekly obligor (company) return, the delta in weekly equity volatility, the weekly delta of the credit curve expressed as the CDS slope defined as the mid-spread of a 10-year tenor CDS minus the mid-spread of a one-year tenor CDS of the same reference entity and the illiquidity factor derived by Amihud (2002) calculated with equation (38) over one week horizons. I report Driscoll and Kraay (1998) standard errors adjusted for heteroskedaticity and spatial correlation. The adj. R^2 is corrected for the fixed effect and thus includes the full model. It provides a true estimation on how much variation is explained, since idiosyncratic fixed effects contribute to the explanatory power in the variation of the depended variable. The sample period covers January 2010 to December 2020.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
△ Risk free rate	−2.714	−5.948	17.051	−1.273	−3.686	−0.686	−4.678	3.948
	(1.708)	(6.607)	(13.090)	(2.696)	(7.088)	(3.099)	(2.920)	(6.744)
△ Slope yield curve	−0.013	0.254	0.712	0.154	−0.271	−0.144	−0.080	0.792*
	(0.108)	(0.377)	(0.495)	(0.153)	(0.315)	(0.148)	(0.116)	(0.441)
△ VSTOXX	0.281***	0.312	1.438*	0.364*	0.538	0.616***	0.055	0.701
	(0.108)	(0.638)	(0.779)	(0.218)	(0.543)	(0.232)	(0.096)	(0.585)
△ CRI	−0.325***	−0.729***	2.234***	−0.758***	0.479*	−0.113*	−0.215***	−0.287
	(0.074)	(0.136)	(0.404)	(0.068)	(0.283)	(0.060)	(0.063)	(0.231)
△ Slope CRI	−0.236**	−0.569	2.182***	−0.405**	0.690**	0.243	−0.339**	−1.815***
	(0.115)	(0.385)	(0.655)	(0.161)	(0.345)	(0.169)	(0.145)	(0.538)
△ Slope CDS	0.475***	0.247	0.902**	0.656***	0.628***	−0.022	0.409***	0.884***
	(0.147)	(0.372)	(0.434)	(0.163)	(0.203)	(0.196)	(0.086)	(0.149)
Company returns	0.571***	−7.441***	−4.141***	0.558***	−0.507	−0.015	0.232**	0.729*
	(0.161)	(0.863)	(0.683)	(0.164)	(0.385)	(0.196)	(0.091)	(0.395)
Equity volatility	−0.106	−0.250	0.441	0.074	−0.031	0.365	−0.106*	−0.320**
	(0.067)	(0.657)	(0.307)	(0.054)	(0.186)	(0.250)	(0.055)	(0.135)
ILLIQ	−20,991.650	−2.550	−1.519	25,387.140	−0.084	−1.564**	0.171	23,489.110
	(15,486.940)	(4.652)	(1.216)	(95,931.820)	(0.095)	(0.624)	(0.288)	(17,621.830)
△ Gap(-1)	0.056	−0.067*	−0.042	−0.044	−0.136**	−0.138	−0.002	0.106
	(0.076)	(0.039)	(0.065)	(0.050)	(0.059)	(0.108)	(0.074)	(0.074)
△ Gap(-2)	0.109*	−0.054*	−0.015	−0.023	0.018	−0.054	−0.027	−0.061
	(0.058)	(0.032)	(0.049)	(0.052)	(0.054)	(0.044)	(0.064)	(0.115)
Observations	2,276	5,121	7,966	1,138	4,552	1,707	1,707	1,707
Adjusted R^2	0.231	0.087	0.118	0.396	0.048	0.074	0.111	0.292
Significance Levels:	*p<0.1; **p<0.05; ***p<0.01							

Table 24: Determinants of CG Model CDS Spreads - Equity Volatility Calibration - 1 year tenor

This table reports the estimates from the panel regressions of weekly changes in model 1-year CDS mid spreads estimated by the CG model calibrated with 1000-day rolling window equity volatility. The regression specification is performed according to equation 40. (1) reports estimates for the sector Basicmaterials, (2) for the sector Consumer Non-Cyclicals, (3) Consumer Cyclicals, (4) Energy, (5) Industrials, (6) Technology, (7) Utilities and (8) Healthcare. Using equation 40, I regress the weekly change in model spreads for each obligor (in basis points) on a sector specific constant, the weekly change in the risk-free rate defined as the 3-month EURIBOR, the weekly change in the slope of the yield curve defined as the 12 month EURIBOR minus the one-month EURIBOR and the weekly change of the VSTOXX index, the weekly change in the CRI and the weekly delta of the CRI slope defined as the mid-spread of a 10-year tenor CRI index value minus the mid-spread of a one-year tenor CRI index value. Regarding firm specific variables, I consider the weekly obligor (company) return, weekly equity volatility, the weekly delta of the credit curve expressed as the CDS slope defined as the mid-spread of a 10-year tenor CDS minus the mid-spread of a one-year tenor CDS of the same reference entity and the illiquidity factor derived by Amihud (2002) calculated with equation (38) over one week horizons. I report Driscoll and Kraay (1998) standard errors adjusted for heteroskedaticity and spatial correlation. The adj. R^2 is corrected for the fixed effect and thus includes the full model. It provides a true estimation on how much variation is explained, since idiosyncratic fixed effects contribute to the explanatory power in the variation of the depended variable. The sample period covers December 2007 to December 2020.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
△ Risk free rate	−0.124	1.319	−5.860	0.042	−1.751	−0.279	−1.059**	−4.982
	(0.390)	(2.113)	(3.714)	(0.056)	(1.563)	(1.219)	(0.469)	(3.266)
△ Slope yield curve	0.028	0.212	0.039	0.002	0.030	−0.045	0.029	0.230
	(0.034)	(0.228)	(0.301)	(0.013)	(0.161)	(0.188)	(0.039)	(0.208)
△ VSTOXX	−0.267***	0.114	−1.255***	−0.012	−0.448	−0.893***	−0.054	−0.234
	(0.061)	(0.334)	(0.478)	(0.013)	(0.277)	(0.345)	(0.044)	(0.463)
△ CRI	0.062***	−0.188**	0.561***	−0.006	0.155	−0.007	0.029	−0.024
	(0.019)	(0.083)	(0.153)	(0.005)	(0.104)	(0.069)	(0.024)	(0.126)
△ Slope CRI	0.061	−0.318*	0.457	0.004	0.120	0.009	−0.040	−0.494**
	(0.040)	(0.177)	(0.393)	(0.008)	(0.166)	(0.223)	(0.043)	(0.211)
△ Slope CDS	0.006	−0.141*	−0.277***	0.016**	−0.287***	−0.154***	−0.036	−0.409
	(0.036)	(0.085)	(0.076)	(0.007)	(0.103)	(0.043)	(0.040)	(0.397)
Company returns	−0.661***	−5.874***	−12.099***	−0.087***	−4.349***	−3.646***	−0.831***	−3.501***
	(0.115)	(0.475)	(0.756)	(0.031)	(0.380)	(0.865)	(0.183)	(0.689)
Equity volatility	0.030	−0.557**	0.324	0.007	−0.051	−0.092	−0.085	0.070
	(0.045)	(0.261)	(0.219)	(0.011)	(0.198)	(0.372)	(0.093)	(0.400)
ILLIQ	3,542.342	0.054	−0.021	1.534	0.666	−0.646	0.246***	−8.984
	(5,482.267)	(0.221)	(0.433)	(2.775)	(0.750)	(17.340)	(0.093)	(17.151)
△ GG(-1)	−0.038	−0.109***	0.003	0.112	−0.073*	0.350***	0.064	−0.026
	(0.078)	(0.037)	(0.027)	(0.116)	(0.044)	(0.117)	(0.047)	(0.061)
△ CG(-2)	0.044	−0.072**	0.004	−0.139*	−0.008	−0.111	0.078*	0.026
	(0.097)	(0.028)	(0.033)	(0.073)	(0.041)	(0.111)	(0.041)	(0.076)
Observations	4,056	8,788	15,548	2,028	7,436	3,380	4,732	4,732
Adjusted R^2	0.168	0.089	0.280	0.169	0.201	0.391	0.216	0.068

Significance Levels: * p<0.1; ** p<0.05; *** p<0.01

Table 25: Determinants of CG Model CDS Spreads - Option-Implied Volatility Calibration - 1 year tenor

This table reports the estimates from the panel regressions of weekly changes in model 1-year CDS mid spreads estimated by the CG model calibrated with option-implied volatility extracted out of at-the-money put and call options with constant maturity of one year in correspondence to equation 40. The regression specification is performed according to equation 40. (1) reports estimates for the sector Basicmaterials, (2) for the sector Consumer Non-Cyclicals, (3) Consumer Cyclicals, (4) Energy, (5) Industrials, (6) Technology, (7) Utilities and (8) Healthcare. Using equation 40, I regress the weekly change in model spreads for each obligor (in basis points) on a sector specific constant, the weekly change in the risk-free rate defined as the 3-month EURIBOR, the weekly change in the slope of the yield curve defined as the 12 month EURIBOR minus the one-month EURIBOR and the weekly change of the VSTOXX index, the weekly change in the CRI and the weekly delta of the CRI slope defined as the mid-spread of a 10-year tenor CRI index value minus the mid-spread of a one-year tenor CRI index value. Regarding firm specific variables, I consider the weekly obligor (company) return, weekly equity volatility, the weekly delta of the credit curve expressed as the CDS slope defined as the mid-spread of a 10-year tenor CDS minus the mid-spread of a one-year tenor CDS of the same reference entity and the illiquidity factor derived by Amihud (2002) calculated with equation (38) over one week horizons. I report Driscoll and Kraay (1998) standard errors adjusted for heteroskedaticity and spatial correlation. The adj. R^2 is corrected for the fixed effect and thus includes the full model. It provides a true estimation on how much variation is explained, since idiosyncratic fixed effects contribute to the explanatory power in the variation of the depended variable. The sample period covers January 2010 to December 2020.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
△ Risk free rate	−0.454	−5.762	18.491	0.666	−1.914	2.430	−3.262*	−2.297
	(0.773)	(6.311)	(13.021)	(1.018)	(6.965)	(2.777)	(1.810)	(3.961)
△ Slope yield curve	−0.028	0.247	0.680	0.018	−0.285	−0.147	−0.096	0.789**
	(0.057)	(0.361)	(0.509)	(0.040)	(0.308)	(0.139)	(0.080)	(0.347)
△ VSTOXX	−0.048	0.273	1.353*	0.277*	0.547	0.541***	0.162**	0.812**
	(0.087)	(0.635)	(0.817)	(0.160)	(0.572)	(0.196)	(0.075)	(0.364)
△ CRI	0.203***	−0.390***	2.663***	−0.040*	0.989***	0.193***	0.236***	0.438***
	(0.046)	(0.126)	(0.397)	(0.022)	(0.286)	(0.057)	(0.044)	(0.151)
△ Slope CRI	0.019	−0.452	2.345***	0.039	0.814**	0.110	−0.023	−0.721**
	(0.071)	(0.367)	(0.666)	(0.037)	(0.353)	(0.121)	(0.108)	(0.281)
△ Slope CDS	−0.083	−0.118	0.469	0.007	0.250	0.096	−0.001	−0.005
	(0.063)	(0.286)	(0.426)	(0.027)	(0.205)	(0.140)	(0.037)	(0.009)
Company returns	−0.194**	−7.783***	−4.629***	−0.064	−0.856**	−0.174	−0.240***	−0.181
	(0.081)	(0.855)	(0.756)	(0.043)	(0.387)	(0.196)	(0.073)	(0.206)
Equity volatility	0.038	−0.183	0.481	0.149***	0.027	0.393	−0.083***	−0.086
	(0.036)	(0.658)	(0.321)	(0.027)	(0.186)	(0.252)	(0.029)	(0.074)
ILLIQ	−9,352.287	−2.622	−1.509	−33,964.730	−0.070	−1.283**	0.056	9,912.027
	(12,307.600)	(4.633)	(1.167)	(26,113.540)	(0.081)	(0.564)	(0.156)	(10,623.830)
△ CG(-1)	−0.184***	−0.064*	−0.040	−0.150	−0.133**	−0.162	−0.006	0.129
	(0.062)	(0.038)	(0.065)	(0.122)	(0.059)	(0.104)	(0.071)	(0.139)
△ CG(-2)	−0.075	−0.054*	−0.012	−0.206***	0.019	−0.054	−0.015	0.034
	(0.163)	(0.032)	(0.048)	(0.069)	(0.056)	(0.044)	(0.079)	(0.131)
Observations	2,276	5,121	7,966	1,138	4,552	1,707	1,707	1,707
Adjusted R^2	0.164	0.096	0.139	0.263	0.072	0.120	0.233	0.117

Significance Levels: *p<0.1; **p<0.05; ***p<0.01

Table 26: Determinants of Market CDS Spreads - 1 year tenor

This table reports the estimates from the panel regressions of weekly changes in market 1-year CDS mid spreads using equation 41. (1) reports estimates for the sector Basicmaterials, (2) for the sector Consumer Non-Cyclicals, (3) Consumer Cyclicals, (4) Energy, (5) Industrials, (6) Technology, (7) Utilities and (8) Healthcare. Using equation (39), I regress the weekly change in market spreads for each obligor (in basis points) on a sector specific constant, the weekly change in the risk-free rate defined as the 3-month EURIBOR, the weekly change in the slope of the yield curve defined as the 12 month EURIBOR minus the one-month EURIBOR and the weekly change of the VSTOXX index, the weekly change in the CRI and the weekly delta of the CRI slope defined as the mid-spread of a 10-year tenor CRI index value minus the mid-spread of a one-year tenor CRI index value. Regarding firm specific variables, I consider the weekly obligor (company) return, weekly equity volatility, the weekly delta of the credit curve expressed as the CDS slope defined as the mid-spread of a 10-year tenor CDS minus the mid-spread of a one-year tenor CDS of the same reference entity and the illiquidity factor derived by Amihud (2002) calculated with equation (38) over one week horizons. I report Driscoll and Kraay (1998) standard errors adjusted for heteroskedaticity and spatial correlation. The adj. R^2 is corrected for the fixed effect and thus includes the full model. It provides a true estimation on how much variation is explained, since idiosyncratic fixed effects contribute to the explanatory power in the variation of the depended variable. The sample period covers December 2007 to December 2020.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
△ Risk free rate	−1.488	−0.414	−0.526	0.852	−1.095	1.028	−1.336	−1.450*
	(0.985)	(1.311)	(1.677)	(1.058)	(1.880)	(1.115)	(1.458)	(0.828)
△ Slope yield curve	0.153*	0.115	0.162	−0.014	0.096	−0.009	0.001	0.059
	(0.080)	(0.072)	(0.117)	(0.098)	(0.070)	(0.203)	(0.134)	(0.044)
△ VSTOXX	0.009	0.204*	0.098	−0.065	−0.091	−0.122	0.258**	0.093*
	(0.065)	(0.119)	(0.217)	(0.166)	(0.104)	(0.211)	(0.126)	(0.048)
△ CRI	0.351***	0.274***	0.579***	0.284***	0.301***	0.519***	0.467***	0.151***
	(0.052)	(0.049)	(0.095)	(0.057)	(0.041)	(0.083)	(0.063)	(0.025)
△ Slope CRI	0.465**	0.575***	1.083***	0.377***	0.454***	0.905***	0.807***	0.140**
	(0.192)	(0.105)	(0.210)	(0.088)	(0.122)	(0.219)	(0.142)	(0.063)
△ Slope CDS	−0.693***	−0.859***	−1.339***	−1.010***	−0.582***	−1.466***	−1.167***	−0.321*
	(0.193)	(0.113)	(0.061)	(0.244)	(0.138)	(0.036)	(0.130)	(0.174)
Company returns	−0.648***	−0.360***	−1.082***	−0.647***	−0.630***	−0.938***	−0.534***	−0.086**
	(0.112)	(0.067)	(0.128)	(0.203)	(0.107)	(0.327)	(0.123)	(0.035)
Equity volatility	0.090*	0.098	−0.001	0.161***	0.079**	0.325	0.059	0.038
	(0.051)	(0.062)	(0.035)	(0.051)	(0.036)	(0.245)	(0.059)	(0.035)
ILLIQ	2,071.485	−0.019	0.144***	14.756	0.158	−8.448	0.370	−0.225
	(8,516.627)	(0.025)	(0.052)	(57.858)	(0.131)	(9.866)	(0.248)	(0.994)
△ CDS(-1)	−0.068	0.091**	0.032	−0.015	0.117***	0.058	−0.006	−0.010
	(0.044)	(0.043)	(0.019)	(0.095)	(0.025)	(0.046)	(0.047)	(0.040)
△ CDS(-2)	0.057	−0.105	−0.030	0.117***	0.024	−0.045	−0.044	0.047
	(0.054)	(0.121)	(0.021)	(0.030)	(0.034)	(0.045)	(0.057)	(0.034)
Observations	4,056	8,788	15,548	2,028	7,436	3,380	4,732	4,732
Adjusted R^2	0.380	0.451	0.847	0.563	0.297	0.929	0.423	0.187

Significance Levels: *p<0.1; **p<0.05; ***p<0.01

H.2 10 Year Tenor

Table 27: Determinants of the Gap between Market and Model CDS Spreads - Equity Volatility Calibration - 10 year tenor

This table reports the estimates from the panel regressions of weekly changes in the difference between market and CG model 10-year CDS mid spreads calibrated with 1000-day equity volatility of equation 39. (1) reports estimates for the sector Basicmaterials, (2) for the sector Consumer Non-Cyclicals, (3) Consumer Cyclicals, (4) Energy, (5) Industrials, (6) Technology, (7) Utilities and (8) Healthcare. Using equation 39, I regress the weekly gap for each obligor (in basis points) on a sector specific constant, the weekly change in the risk-free rate defined as the 3-month EURIBOR, the weekly change in the slope of the yield curve defined as the 12 month EURIBOR minus the one-month EURIBOR and the weekly change of the VSTOXX index, the weekly change in the CRI and the weekly delta of the CRI slope defined as the mid-spread of a 10-year tenor CRI index value minus the mid-spread of a one-year tenor CRI index value. Regarding firm specific variables, I consider the weekly obligor (company) return, weekly equity volatility, the weekly delta of the credit curve expressed as the CDS slope defined as the mid-spread of a 10-year tenor CDS minus the mid-spread of a one-year tenor CDS of the same reference entity and the illiquidity factor derived by Amihud (2002) calculated with equation (38) over one week horizons. I report Driscoll and Kraay (1998) standard errors adjusted for heteroskedaticity and spatial correlation. The adj. R^2 is corrected for the fixed effect and thus includes the full model. It provides a true estimation on how much variation is explained, since idiosyncratic fixed effects contribute to the explanatory power in the variation of the depended variable. The sample period covers December 2007 to December 2020.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
△ Risk free rate	1.401	1.430	−5.592	−0.647	−0.530	−0.417	−0.031	−3.481
	(1.124)	(1.831)	(3.936)	(1.055)	(2.861)	(1.412)	(1.711)	(2.766)
△ Slope yield curve	−0.121	0.094	−0.115	0.006	−0.085	−0.061	0.038	0.172
	(0.084)	(0.246)	(0.295)	(0.100)	(0.170)	(0.322)	(0.129)	(0.211)
△ VSTOXX	−0.296***	−0.059	−1.377***	0.030	−0.284	−1.001***	−0.329**	−0.330
	(0.097)	(0.316)	(0.417)	(0.161)	(0.206)	(0.358)	(0.137)	(0.464)
△ CRI	−0.295***	−0.465***	−0.017	−0.289***	−0.137	−0.520***	−0.437***	−0.174
	(0.060)	(0.095)	(0.167)	(0.058)	(0.094)	(0.116)	(0.059)	(0.127)
△ Slope CRI	−0.122	−0.440***	−0.619**	−0.312***	−0.171	−0.340**	−0.415***	−0.460**
	(0.172)	(0.162)	(0.267)	(0.084)	(0.121)	(0.150)	(0.119)	(0.181)
△ Slope CDS	−0.288	−0.245**	0.068	0.032	−0.692***	0.285***	0.124	−1.088***
	(0.199)	(0.123)	(0.048)	(0.243)	(0.108)	(0.064)	(0.137)	(0.376)
Company returns	−0.016	−5.523***	−11.040***	0.552***	−3.695***	−2.882***	−0.303	−3.416***
	(0.155)	(0.463)	(0.762)	(0.196)	(0.335)	(0.740)	(0.225)	(0.677)
Equity volatility	−0.050	−0.697***	0.329	−0.158***	−0.137	−0.280	−0.133	0.035
	(0.062)	(0.266)	(0.228)	(0.053)	(0.168)	(0.320)	(0.111)	(0.394)
ILLIQ	1,297.318	0.071	−0.170	−7.182	0.480	7.531	−0.157	−8.698
	(9,980.333)	(0.218)	(0.461)	(57.536)	(0.674)	(20.789)	(0.264)	(16.788)
△ Gap(-1)	−0.043	−0.116***	−0.005	0.051	−0.084**	0.232**	0.012	−0.025
	(0.045)	(0.037)	(0.027)	(0.088)	(0.042)	(0.116)	(0.053)	(0.064)
△ Gap(-2)	0.015	−0.072**	−0.004	0.052	−0.023	−0.361***	−0.067	0.017
	(0.048)	(0.029)	(0.033)	(0.044)	(0.041)	(0.123)	(0.048)	(0.077)
Observations	4,056	8,788	15,548	2,028	7,436	3,380	4,732	4,732
Adjusted R^2	0.161	0.078	0.224	0.276	0.149	0.401	0.138	0.067

Significance Levels: * p<0.1; ** p<0.05; *** p<0.01

Table 28: Determinants of the Gap between Market and Model CDS Spreads - Option-Implied Volatility Calibration - 10 year tenor

This table reports the estimates from the panel regressions of weekly changes in the difference between market and CG model 10-year CDS mid spreads calibrated with option-implied volatility extracted out of at-the-money put and call options with constant maturity of one year in correspondance to equation 39. (1) reports estimates for the sector Basicmaterials, (2) for the sector Consumer Non-Cyclicals, (3) Consumer Cyclicals, (4) Energy, (5) Industrials, (6) Technology, (7) Utilities and (8) Healthcare. Using equation 39, I regress the weekly gap for each obligor (in basis points) on a sector specific constant, the weekly change in the risk-free rate defined as the 3-month EURIBOR, the weekly change in the slope of the yield curve defined as the 12 month EURIBOR minus the one-month EURIBOR and the weekly change of the VSTOXX index, the weekly change in the CRI and the weekly delta of the CRI slope defined as the mid-spread of a 10-year tenor CRI index value minus the mid-spread of a one-year tenor CRI index value. Regarding firm specific variables, I consider the weekly obligor (company) return, weekly equity volatility, the weekly delta of the credit curve expressed as the CDS slope defined as the mid-spread of a 10-year tenor CDS minus the mid-spread of a one-year tenor CDS of the same reference entity and the illiquidity factor derived by Amihud (2002) calculated with equation (38) over one week horizons. I report Driscoll and Kraay (1998) standard errors adjusted for heteroskedaticity and spatial correlation. The adj. R^2 is corrected for the fixed effect and thus includes the full model. It provides a true estimation on how much variation is explained, since idiosyncratic fixed effects contribute to the explanatory power in the variation of the depended variable. The sample period covers January 2010 to December 2020.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
△ Risk free rate	−1.641	−1.868	3.829	3.741	−0.598	−2.170	−1.844	2.119
	(2.032)	(1.677)	(3.969)	(4.627)	(4.058)	(4.244)	(2.531)	(3.246)
△ Slope yield curve	0.018	0.064	0.248*	0.319	0.027	−0.107	−0.048	0.058
	(0.134)	(0.084)	(0.137)	(0.194)	(0.140)	(0.220)	(0.102)	(0.227)
△ VSTOXX	0.853***	0.373***	1.069***	1.003***	0.470**	0.727***	0.404***	0.855**
	(0.187)	(0.127)	(0.297)	(0.360)	(0.224)	(0.233)	(0.139)	(0.367)
△ CRI	−0.190**	−0.304***	0.213**	−0.656***	−0.060	0.218**	−0.292***	−0.419***
	(0.080)	(0.049)	(0.091)	(0.104)	(0.153)	(0.111)	(0.054)	(0.161)
△ Slope CRI	−0.097	0.062	−0.079	0.425*	0.068	−0.056	−0.007	−0.616***
	(0.097)	(0.099)	(0.125)	(0.236)	(0.159)	(0.216)	(0.107)	(0.182)
△ Slope CDS	−0.403**	−0.564***	−0.510***	−0.193	−0.556***	−1.092***	−0.588***	−0.130
	(0.168)	(0.137)	(0.122)	(0.167)	(0.089)	(0.204)	(0.085)	(0.137)
Company returns	0.538***	−0.870***	−0.433***	0.032	−0.220	0.027	0.385***	0.773**
	(0.186)	(0.138)	(0.149)	(0.239)	(0.144)	(0.344)	(0.095)	(0.391)
Equity volatility	−0.081	−0.029	0.134	0.602***	0.191	0.396	−0.065	−0.081
	(0.079)	(0.104)	(0.103)	(0.139)	(0.146)	(0.258)	(0.054)	(0.230)
ILLIQ	−21,088.880	−0.595	0.080	−89,487.470	−0.087	−0.117	1.574	6,672.551
	(16,217.810)	(0.790)	(0.256)	(118,273.300)	(0.075)	(1.203)	(1.127)	(18,102.070)
△ Gap(-1)	−0.071	−0.055*	−0.138**	−0.088***	−0.163***	−0.187	−0.030	−0.102
	(0.071)	(0.030)	(0.071)	(0.034)	(0.059)	(0.128)	(0.047)	(0.095)
△ Gap(-2)	0.100**	−0.053**	−0.029	−0.111***	−0.025	−0.128**	−0.050	0.091*
	(0.044)	(0.025)	(0.035)	(0.042)	(0.055)	(0.065)	(0.041)	(0.049)
Observations	2,276	5,121	7,966	1,138	4,552	1,707	1,707	1,707
Adjusted R^2	0.130	0.111	0.097	0.268	0.078	0.115	0.270	0.093

Significance Levels: * p<0.1; ** p<0.05; *** p<0.01

Table 29: Determinants of CG Model CDS Spreads - Equity Volatility Calibration - 10 year tenor

This table reports the estimates from the panel regressions of weekly changes in model 10-year CDS mid spreads estimated by the CG model calibrated with 1000-day rolling window equity volatility. The regression specification is performed according to equation 40. (1) reports estimates for the sector Basicmaterials, (2) for the sector Consumer Non-Cyclicals, (3) Consumer Cyclicals, (4) Energy, (5) Industrials, (6) Technology, (7) Utilities and (8) Healthcare. Using equation 40, I regress the weekly change in model spreads for each obligor (in basis points) on a sector specific constant, the weekly change in the risk-free rate defined as the 3-month EURIBOR, the weekly change in the slope of the yield curve defined as the 12 month EURIBOR minus the one-month EURIBOR and the weekly change of the VSTOXX index, the weekly change in the CRI and the weekly delta of the CRI slope defined as the mid-spread of a 10-year tenor CRI index value minus the mid-spread of a one-year tenor CRI index value. Regarding firm specific variables, I consider the weekly obligor (company) return, weekly equity volatility, the weekly delta of the credit curve expressed as the CDS slope defined as the mid-spread of a 10-year tenor CDS minus the mid-spread of a one-year tenor CDS of the same reference entity and the illiquidity factor derived by Amihud (2002) calculated with equation (38) over one week horizons. I report Driscoll and Kraay (1998) standard errors adjusted for heteroskedaticity and spatial correlation. The adj. R^2 is corrected for the fixed effect and thus includes the full model. It provides a true estimation on how much variation is explained, since idiosyncratic fixed effects contribute to the explanatory power in the variation of the depended variable. The sample period covers December 2007 to December 2020.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
△ Risk free rate	−0.124	1.319	−5.860	0.042	−1.751	−0.304	−1.059**	−4.982
	(0.390)	(2.113)	(3.714)	(0.056)	(1.563)	(1.330)	(0.469)	(3.266)
△ Slope yield curve	0.028	0.212	0.039	0.002	0.030	−0.049	0.029	0.230
	(0.034)	(0.228)	(0.301)	(0.013)	(0.161)	(0.205)	(0.039)	(0.208)
△ VSTOXX	−0.267***	0.114	−1.255***	−0.012	−0.448	−0.974***	−0.054	−0.234
	(0.061)	(0.334)	(0.478)	(0.013)	(0.277)	(0.376)	(0.044)	(0.463)
△ CRI	0.062***	−0.188**	0.561***	−0.006	0.155	−0.007	0.029	−0.024
	(0.019)	(0.083)	(0.153)	(0.005)	(0.104)	(0.076)	(0.024)	(0.126)
△ Slope CRI	−0.001	−0.130	−0.105	0.010**	−0.035	0.010	−0.068**	−0.470**
	(0.032)	(0.132)	(0.353)	(0.004)	(0.133)	(0.243)	(0.033)	(0.197)
△ Slope CDS	0.006	−0.141*	−0.277***	0.016**	−0.287***	−0.168***	−0.036	−0.409
	(0.036)	(0.085)	(0.076)	(0.007)	(0.103)	(0.047)	(0.040)	(0.397)
Company returns	−0.661***	−5.874***	−12.099***	−0.087***	−4.349***	−3.978***	−0.831***	−3.501***
	(0.115)	(0.475)	(0.756)	(0.031)	(0.380)	(0.944)	(0.183)	(0.689)
Equity volatility	0.030	−0.557**	0.324	0.007	−0.051	−0.100	−0.085	0.070
	(0.045)	(0.261)	(0.219)	(0.011)	(0.198)	(0.406)	(0.093)	(0.400)
ILLIQ	3,542.342	0.054	−0.021	1.534	0.666	−0.704	0.246***	−8.984
	(5,482.267)	(0.221)	(0.433)	(2.775)	(0.750)	(18.919)	(0.093)	(17.151)
△ CG(-1)	−0.038	−0.109***	0.003	0.112	−0.073*	0.350***	0.064	−0.026
	(0.078)	(0.037)	(0.027)	(0.116)	(0.044)	(0.117)	(0.047)	(0.061)
△ CG(-2)	0.044	−0.072**	0.004	−0.139*	−0.008	−0.111	0.078*	0.026
	(0.097)	(0.028)	(0.033)	(0.073)	(0.041)	(0.111)	(0.041)	(0.076)
Observations	4,056	8,788	15,548	2,028	7,436	3,380	4,732	4,732
Adjusted R^2	0.167	0.089	0.280	0.169	0.201	0.390	0.215	0.068

Significance Levels: * p<0.1; ** p<0.05; *** p<0.01

Table 30: Determinants of CG Model CDS Spreads - Option-Implied Volatility Calibration - 10 year tenor

This table reports the estimates from the panel regressions of weekly changes in model 10-year CDS mid spreads estimated by the CG model calibrated with option-implied volatility extracted out of at-the-money put and call options with constant maturity of one year in correspondence to equation 40. The regression specification is performed according to equation 40. (1) reports estimates for the sector Basicmaterials, (2) for the sector Consumer Non-Cyclicals, (3) Consumer Cyclicals, (4) Energy, (5) Industrials, (6) Technology, (7) Utilities and (8) Healthcare. Using equation 40, I regress the weekly change in model spreads for each obligor (in basis points) on a sector specific constant, the weekly change in the risk-free rate defined as the 3-month EURIBOR, the weekly change in the slope of the yield curve defined as the 12 month EURIBOR minus the one-month EURIBOR and the weekly change of the VSTOXX index, the weekly change in the CRI and the weekly delta of the CRI slope defined as the mid-spread of a 10-year tenor CRI index value minus the mid-spread of a one-year tenor CRI index value. Regarding firm specific variables, I consider the weekly obligor (company) return, the delta in weekly equity volatility, the weekly delta of the credit curve expressed as the CDS slope defined as the mid-spread of a 10-year tenor CDS minus the mid-spread of a one-year tenor CDS of the same reference entity and the illiquidity factor derived by Amihud (2002) calculated with equation (38) over one week horizons. I report Driscoll and Kraay (1998) standard errors adjusted for heteroskedaticity and spatial correlation. The adj. R^2 is corrected for the fixed effect and thus includes the full model. It provides a true estimation on how much variation is explained, since idiosyncratic fixed effects contribute to the explanatory power in the variation of the depended variable. The sample period covers January 2010 to December 2020.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
△ Risk free rate	1.370	−1.598	5.757	6.245*	1.922	1.933	−0.380	−0.215
	(1.225)	(1.327)	(3.597)	(3.377)	(3.748)	(3.861)	(1.328)	(1.973)
△ Slope yield curve	0.016	0.047	0.198	0.144	−0.002	−0.124	−0.071	0.163*
	(0.095)	(0.060)	(0.140)	(0.117)	(0.104)	(0.221)	(0.055)	(0.092)
△ VSTOXX	0.474***	0.338***	0.968***	0.907***	0.482**	0.637**	0.486***	1.048***
	(0.183)	(0.123)	(0.258)	(0.313)	(0.237)	(0.261)	(0.105)	(0.204)
△ CRI	0.347***	0.035	0.637***	0.067	0.449***	0.510***	0.165***	0.284***
	(0.055)	(0.029)	(0.089)	(0.068)	(0.158)	(0.111)	(0.024)	(0.053)
△ Slope CRI	−0.393***	−0.155**	−0.352***	0.119	−0.331***	−0.261	−0.137***	−0.409***
	(0.098)	(0.070)	(0.130)	(0.139)	(0.122)	(0.199)	(0.042)	(0.139)
△ Slope CDS	0.043	0.057	0.039	0.140**	0.048	0.043	−0.002	−0.052**
	(0.071)	(0.047)	(0.094)	(0.067)	(0.056)	(0.139)	(0.029)	(0.025)
Company returns	−0.244***	−1.218***	−0.942***	−0.574***	−0.577***	−0.144	−0.082	−0.166**
	(0.091)	(0.109)	(0.144)	(0.173)	(0.147)	(0.341)	(0.052)	(0.076)
Equity volatility	0.061**	0.038	0.186	0.703***	0.267*	0.433*	−0.028*	0.130
	(0.028)	(0.072)	(0.116)	(0.144)	(0.148)	(0.262)	(0.015)	(0.102)
ILLIQ	−7,492.875	−0.682	0.072	−113,020.700*	−0.076	0.266	1.518	−4,192.706
	(12,474.730)	(0.787)	(0.284)	(61,497.030)	(0.048)	(1.217)	(1.052)	(5,495.363)
△ CG(-1)	−0.157***	−0.032	−0.127*	−0.084*	−0.153**	−0.213*	−0.102	0.062*
	(0.050)	(0.032)	(0.069)	(0.045)	(0.063)	(0.126)	(0.064)	(0.038)
△ CG(-2)	0.025	−0.048	−0.020	−0.157***	−0.023	−0.134**	0.013	−0.089
	(0.043)	(0.031)	(0.036)	(0.042)	(0.059)	(0.064)	(0.054)	(0.081)
Observations	2,276	5,121	7,966	1,138	4,552	1,707	1,707	1,707
Adjusted R^2	0.266	0.147	0.197	0.536	0.159	0.143	0.383	0.396

Significance Levels: * p<0.1; ** p<0.05; *** p<0.01

Table 31: Determinants of Market CDS Spreads - 10 year tenor

This table reports the estimates from the panel regressions of weekly changes in market 10-year CDS mid spreads using equation 41. (1) reports estimates for the sector Basicmaterials, (2) for the sector Consumer Non-Cyclicals, (3) Consumer Cyclicals, (4) Energy, (5) Industrials, (6) Technology, (7) Utilities and (8) Healthcare. Using equation (39), I regress the weekly change in market spreads for each obligor (in basis points) on a sector specific constant, the weekly change in the risk-free rate defined as the 3-month EURIBOR, the weekly change in the slope of the yield curve defined as the 12 month EURIBOR minus the one-month EURIBOR and the weekly change of the VSTOXX index, the weekly change in the CRI and the weekly delta of the CRI slope defined as the mid-spread of a 10-year tenor CRI index value minus the mid-spread of a one-year tenor CRI index value. Regarding firm specific variables, I consider the weekly obligor (company) return, weekly equity volatility, the weekly delta of the credit curve expressed as the CDS slope defined as the mid-spread of a 10-year tenor CDS minus the mid-spread of a one-year tenor CDS of the same reference entity and the illiquidity factor derived by Amihud (2002) calculated with equation (38) over one week horizons. I report Driscoll and Kraay (1998) standard errors adjusted for heteroskedaticity and spatial correlation. The adj. R^2 is corrected for the fixed effect and thus includes the full model. It provides a true estimation on how much variation is explained, since idiosyncratic fixed effects contribute to the explanatory power in the variation of the depended variable. The sample period covers December 2007 to December 2020.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
△ Risk free rate	−1.559	−0.217	−0.520	0.729	−1.405	1.009	−1.257	−1.485*
	(1.083)	(1.222)	(1.704)	(1.070)	(1.926)	(1.181)	(1.489)	(0.796)
△ Slope yield curve	0.145*	0.108	0.160	−0.007	0.116	−0.010	−0.010	0.062
	(0.082)	(0.067)	(0.117)	(0.101)	(0.073)	(0.207)	(0.136)	(0.045)
△ VSTOXX	0.040	0.207*	0.110	−0.054	−0.100	−0.176	0.250**	0.089*
	(0.063)	(0.111)	(0.220)	(0.167)	(0.103)	(0.268)	(0.126)	(0.049)
△ CRI	0.355***	0.272***	0.579***	0.288***	0.298***	0.521***	0.468***	0.150***
	(0.052)	(0.049)	(0.094)	(0.059)	(0.042)	(0.087)	(0.064)	(0.025)
△ Slope CRI	0.120	0.295***	0.506**	0.382***	0.142	0.375	0.341**	−0.012
	(0.180)	(0.110)	(0.227)	(0.087)	(0.122)	(0.233)	(0.137)	(0.062)
△ Slope CDS	0.294	0.138	−0.343***	−0.018	0.438***	−0.464***	−0.167	0.669***
	(0.194)	(0.108)	(0.063)	(0.245)	(0.139)	(0.036)	(0.130)	(0.165)
Company returns	−0.647***	−0.350***	−1.075***	−0.637***	−0.620***	−1.037***	−0.534***	−0.086**
	(0.115)	(0.076)	(0.127)	(0.201)	(0.103)	(0.375)	(0.124)	(0.035)
Equity volatility	0.076	0.101	−0.002	0.162***	0.074**	0.366	0.063	0.040
	(0.050)	(0.062)	(0.037)	(0.053)	(0.037)	(0.304)	(0.058)	(0.035)
ILLIQ	1,899.196	−0.020	0.145***	7.671	0.159	−9.988	0.388	−0.186
	(8,933.564)	(0.026)	(0.052)	(57.757)	(0.130)	(10.389)	(0.250)	(1.012)
△ CDS(-1)	−0.024	−0.041	0.032	0.053	0.087***	0.072	−0.026	−0.039
	(0.037)	(0.090)	(0.037)	(0.086)	(0.033)	(0.074)	(0.046)	(0.041)
△ CDS(-2)	0.044	0.063	−0.021	0.046	0.060***	−0.115	−0.043	0.058*
	(0.040)	(0.039)	(0.038)	(0.045)	(0.022)	(0.085)	(0.053)	(0.033)
Observations	4,056	8,788	15,548	2,028	7,436	3,380	4,732	4,732
Adjusted R^2	0.292	0.126	0.390	0.299	0.289	0.585	0.222	0.366

Significance Levels: *p<0.1; **p<0.05; ***p<0.01