

date	risk-free rate	Market excess ret	Stock	Stock excess ret
2000-01-31	0.0041	-0.0474	-0.04342207	-0.047522074
2000-02-29	0.0043	0.0245	-0.05218321	-0.056483206
2000-03-31	0.0047	0.052	0.00419623	-0.000503772
2000-04-28	0.0046	-0.064	-0.02179382	-0.026393819
2000-05-31	0.005	-0.0442	0.00578235	0.00078235
2000-06-30	0.004	0.0464	-0.04113195	-0.04513195
2000-07-31	0.0048	-0.0251	0.0850629	0.080262905
2000-08-31	0.005	0.0703	0.03910927	0.034109267
2000-09-29	0.0051	-0.0545	-0.02031488	-0.025414881
2000-10-31	0.0056	-0.0276	0.06035333	0.054753327
2000-11-30	0.0051	-0.1072	0.03989781	0.034797811
2000-12-29	0.005	0.0119	0.20644644	0.201446439
2001-01-31	0.0054	0.0313	-0.08132662	-0.086726625
2001-02-28	0.0038	-0.1005	0.02446145	0.020661449
2001-03-30	0.0042	-0.0726	-0.07889844	-0.083098442
2001-04-30	0.0039	0.0794	0.1453289	0.141428903
2001-05-31	0.0032	0.0072	0.00140448	-0.001795516
2001-06-29	0.0028	-0.0194	-0.03794088	-0.040740879
2001-07-31	0.003	-0.0213	-0.01928323	-0.022283229
2001-08-31	0.0031	-0.0646	-0.06462359	-0.067723592
2001-09-28	0.0028	-0.0925	-0.05475516	-0.057555156
2001-10-31	0.0022	0.0246	0.06097623	0.058776228
2001-11-30	0.0017	0.0754	0.10336938	0.101669382
2001-12-31	0.0015	0.016	0.03141464	0.029914643
2002-01-31	0.0014	-0.0144	-0.06091183	-0.062311827
2002-02-28	0.0013	-0.0229	0.06778353	0.066483528
2002-03-28	0.0013	0.0424	-0.02459559	-0.02589559
2002-04-30	0.0015	-0.052	0.09391272	0.092412718
2002-05-31	0.0014	-0.0138	0.00166866	0.000268657
2002-06-28	0.0013	-0.0721	-0.01913979	-0.020439795
2002-07-31	0.0015	-0.0818	0.02276488	0.021264883
2002-08-30	0.0014	0.005	-0.00157897	-0.002978972
2002-09-30	0.0014	-0.1035	-0.11999972	-0.121399716
2002-10-31	0.0014	0.0784	0.15363584	0.152235842
2002-11-29	0.0012	0.0596	0.02857233	0.027372329
2002-12-31	0.0011	-0.0576	-0.0508061	-0.051906098
2003-01-31	0.001	-0.0257	0.0105416	0.009541602
2003-02-28	0.0009	-0.0188	0.01169833	0.010798334
2003-03-31	0.001	0.0109	0.03668126	0.035681256
2003-04-30	0.001	0.0822	-0.03046101	-0.031461009
2003-05-30	0.0009	0.0605	0.00878267	0.007882673
2003-06-30	0.001	0.0142	0.01984753	0.018847529
2003-07-31	0.0007	0.0235	0.08698896	0.086288964
2003-08-29	0.0007	0.0234	0.02085556	0.020155565
2003-09-30	0.0008	-0.0124	-0.03039361	-0.031193613
2003-10-31	0.0007	0.0608	0.14188759	0.141187589
2003-11-28	0.0007	0.0135	0.00645703	0.005757027
2003-12-31	0.0008	0.0429	0.07578584	0.074985836
2004-01-30	0.0007	0.0215	-0.06985798	-0.070557984

2004-02-27	0.0006	0.014	-0.00907045	-0.00967045
2004-03-31	0.0009	-0.0132	0.04934689	0.048446892
2004-04-30	0.0008	-0.0183	0.05630818	0.055508177
2004-05-28	0.0006	0.0117	-0.01792608	-0.018526085
2004-06-30	0.0008	0.0186	0.06445194	0.063651944
2004-07-30	0.001	-0.0406	-0.08499073	-0.085990725
2004-08-31	0.0011	0.0008	0.00450063	0.003400626
2004-09-30	0.0011	0.016	-0.0290204	-0.030120402
2004-10-29	0.0011	0.0143	-0.03001081	-0.031110807
2004-11-30	0.0015	0.0454	0.03053393	0.02903393
2004-12-31	0.0016	0.0343	0.03115993	0.029559934
2005-01-31	0.0016	-0.0276	0.02790343	0.026303428
2005-02-28	0.0016	0.0189	0	-0.0016
2005-03-31	0.0021	-0.0197	0.02084927	0.018749271
2005-04-29	0.0021	-0.0261	-0.10759783	-0.109697833
2005-05-31	0.0024	0.0365	0.00774319	0.005343194
2005-06-30	0.0023	0.0057	-0.05675046	-0.059050461
2005-07-29	0.0024	0.0392	0.037345	0.034945003
2005-08-31	0.003	-0.0122	-0.04578134	-0.048781338
2005-09-30	0.0029	0.0049	0.03106232	0.028162322
2005-10-31	0.0027	-0.0202	0.03571418	0.033014184
2005-11-30	0.0031	0.0361	0.0384434	0.035343398
2005-12-30	0.0032	-0.0025	-0.01248616	-0.015686155
2006-01-31	0.0035	0.0304	-0.06129168	-0.064791676
2006-02-28	0.0034	-0.003	0.01792223	0.014522225
2006-03-31	0.0037	0.0146	0.02853661	0.024836605
2006-04-28	0.0036	0.0073	0.12868328	0.125083282
2006-05-31	0.0043	-0.0357	-0.0153823	-0.019682303
2006-06-30	0.004	-0.0035	-0.03454509	-0.038545087
2006-07-31	0.004	-0.0078	-0.12838924	-0.132389236
2006-08-31	0.0042	0.0203	0.0251262	0.020926202
2006-09-29	0.0041	0.0184	0.03793595	0.033835947
2006-10-31	0.0041	0.0323	0.05939382	0.055293823
2006-11-30	0.0042	0.0171	0.03905396	0.034853961
2006-12-29	0.004	0.0087	-0.0433353	-0.047335299
2007-01-31	0.0044	0.014	-0.04658069	-0.050980688
2007-02-28	0.0038	-0.0196	0.00331736	-0.000482637
2007-03-30	0.0043	0.0068	0.03172337	0.027423366
2007-04-30	0.0044	0.0349	0.08295248	0.078552479
2007-05-31	0.0041	0.0324	0.06863461	0.064534614
2007-06-29	0.004	-0.0196	-0.01330172	-0.017301716
2007-07-31	0.004	-0.0373	0.02454026	0.020540261
2007-08-31	0.0042	0.0092	0.02879543	0.024595433
2007-09-28	0.0032	0.0322	0.02846438	0.025264383
2007-10-31	0.0032	0.018	-0.07715281	-0.080352813
2007-11-30	0.0034	-0.0483	-0.03026147	-0.033661472
2007-12-31	0.0027	-0.0087	0.01273268	0.010032676
2008-01-31	0.0021	-0.0636	-0.05538546	-0.057485457
2008-02-29	0.0013	-0.0309	-0.00953658	-0.010836581
2008-03-31	0.0017	-0.0093	0.00956537	0.007865373

2008-04-30	0.0018	0.046	-0.02842673	-0.030226728
2008-05-30	0.0018	0.0186	0.01520884	0.013408842
2008-06-30	0.0017	-0.0844	-0.10276048	-0.104460484
2008-07-31	0.0015	-0.0077	0.01149613	0.009996134
2008-08-29	0.0013	0.0153	0.02438528	0.023085277
2008-09-30	0.0015	-0.0924	-0.04595106	-0.047451061
2008-10-31	0.0008	-0.1723	-0.05870314	-0.059503136
2008-11-28	0.0003	-0.0786	0.04975785	0.049457852
2008-12-31	0	0.0174	-0.14029437	-0.140294368
2009-01-30	0	-0.0812	-0.06517137	-0.065171371
2009-02-27	0.0001	-0.101	-0.14571988	-0.145819883
2009-03-31	0.0002	0.0895	0.09370753	0.09350753
2009-04-30	0.0001	0.1018	0.15848901	0.158389013
2009-05-29	0	0.0521	6.6416E-06	6.64158E-06
2009-06-30	0.0001	0.0043	0.05254122	0.052441219
2009-07-31	0.0001	0.0772	0.17337683	0.17327683
2009-08-31	0.0001	0.0333	0.02977064	0.029670643
2009-09-30	0.0001	0.0408	0.02357813	0.023478132
2009-10-30	0	-0.0259	-0.00311725	-0.003117252
2009-11-30	0	0.0556	0.05950255	0.059502546
2009-12-31	0.0001	0.0275	0.06753646	0.067436464
2010-01-29	0	-0.0336	-0.02636842	-0.02636842
2010-02-26	0	0.034	0.00229812	0.002298124
2010-03-31	0.0001	0.0631	0.04266936	0.042569356
2010-04-30	0.0001	0.02	0.06102792	0.060927916
2010-05-28	0.0001	-0.0789	-0.09987175	-0.09997175
2010-06-30	0.0001	-0.0557	-0.0040346	-0.004134605
2010-07-30	0.0001	0.0693	0.08292173	0.082821732
2010-08-31	0.0001	-0.0477	-0.07595057	-0.076050569
2010-09-30	0.0001	0.0954	0.10388494	0.10378494
2010-10-29	0.0001	0.0388	-0.02871799	-0.028817986
2010-11-30	0.0001	0.006	0.00338787	0.003287873
2010-12-31	0.0001	0.0682	0.02762379	0.027523794
2011-01-31	0.0001	0.0199	0.01877164	0.018671645
2011-02-28	0.0001	0.0349	0.05527107	0.055171067
2011-03-31	0.0001	0.0046	0.01377162	0.013671619
2011-04-29	0	0.029	0.03967763	0.039677631
2011-05-31	0	-0.0127	-0.0234265	-0.023426501
2011-06-30	0	-0.0175	0.00497986	0.004979855
2011-07-29	0	-0.0235	-0.08128736	-0.081287359
2011-08-31	0.0001	-0.0599	-0.04126692	-0.04136692
2011-09-30	0	-0.0759	-0.13485238	-0.134852377
2011-10-31	0	0.1135	0.1007116	0.100711604
2011-11-30	0	-0.0028	0.03280946	0.032809463
2011-12-30	0	0.0074	0.00851424	0.008514241
2012-01-31	0	0.0505	0.06093201	0.060932009
2012-02-29	0	0.0442	0.01711415	0.017114148
2012-03-30	0	0.0311	0.01838002	0.018380019
2012-04-30	0	-0.0085	0.00168213	0.001682132
2012-05-31	0.0001	-0.0619	-0.04886587	-0.048965875

2012-06-29	0	0.0389	0.06148596	0.061485957
2012-07-31	0	0.0079	0.01819274	0.018192741
2012-08-31	0.0001	0.0255	0.02147888	0.021378883
2012-09-28	0.0001	0.0273	-0.00194355	-0.002043552
2012-10-31	0.0001	-0.0176	-0.05215395	-0.052253947
2012-11-30	0.0001	0.0078	0.04512313	0.04502313
2012-12-31	0.0001	0.0118	0.02089098	0.020790978
2013-01-31	0	0.0557	0.08292946	0.082929457
2013-02-28	0	0.0129	0.04069664	0.040696644
2013-03-28	0	0.0403	0.02221138	0.022211379
2013-04-30	0	0.0155	-0.01505107	-0.015051074
2013-05-31	0	0.028	0.05913488	0.059134883
2013-06-28	0	-0.012	-0.0083431	-0.008343105
2013-07-31	0	0.0565	0.07389125	0.073891248
2013-08-30	0	-0.0271	-0.02737017	-0.027370166
2013-09-30	0	0.0377	0.05133012	0.051330124
2013-10-31	0	0.0418	0.05393171	0.053931714
2013-11-29	0	0.0313	0.0660813	0.066081302
2013-12-31	0	0.0281	0.05048217	0.050482168
2014-01-31	0	-0.0332	-0.08598874	-0.085988741
2014-02-28	0	0.0465	0.05790731	0.057907314
2014-03-31	0	0.0043	0.00690164	0.006901639
2014-04-30	0	-0.0019	0.02528418	0.025284182
2014-05-30	0	0.0206	0.03110538	0.031105384
2014-06-30	0	0.0261	0.00484103	0.004841028
2014-07-31	0	-0.0204	-0.01640633	-0.016406335
2014-08-29	0	0.0424	0.0281179	0.028117905
2014-09-30	0	-0.0197	-0.01611189	-0.016111893
2014-10-31	0	0.0252	0.08533349	0.08533349
2014-11-28	0	0.0255	0.04670494	0.046704938
2014-12-31	0	-0.0006	0.0264226	0.026422605
2015-01-30	0	-0.0311	-0.01229292	-0.012292922
2015-02-27	0	0.0613	0.04560076	0.045600755
2015-03-31	0	-0.0112	-0.02193942	-0.021939422
2015-04-30	0	0.0059	-0.05189457	-0.05189457
2015-05-29	0	0.0136	0.02364045	0.023640446
2015-06-30	0	-0.0153	-0.03004714	-0.030047141
2015-07-31	0	0.0154	-0.01918352	-0.019183518
2015-08-31	0	-0.0604	-0.05419116	-0.054191155
2015-09-30	0	-0.0307	-0.00260302	-0.002603021
2015-10-30	0	0.0775	0.10890915	0.108909148
2015-11-30	0	0.0057	0.00247926	0.002479264
2015-12-31	0.0001	-0.0217	-0.0379361	-0.038036102
2016-01-29	0.0001	-0.0577	0.00239001	0.002290012
2016-02-29	0.0002	-0.0007	0.0464376	0.046237605
2016-03-31	0.0002	0.0696	0.06221767	0.062017671
2016-04-29	0.0001	0.0091	0.00450114	0.004401143
2016-05-31	0.0001	0.0178	0.0123074	0.012207396
2016-06-30	0.0002	-0.0005	0.04039884	0.040198837
2016-07-29	0.0002	0.0395	0.01850194	0.018301945

2016-08-31	0.0002	0.0049	0.01113508	0.01093508
2016-09-30	0.0002	0.0025	-0.01679296	-0.01699296
2016-10-31	0.0002	-0.0202	-0.06202167	-0.062221669
2016-11-30	0.0001	0.0486	0.04566416	0.045564158
2016-12-30	0.0003	0.0182	0.0397694	0.039469397
2017-01-31	0.0004	0.0194	-0.02099985	-0.021399851
2017-02-28	0.0004	0.0357	0.07284618	0.072446179
2017-03-31	0.0003	0.0017	0.02672421	0.026424211
2017-04-28	0.0005	0.0109	0.02351973	0.023019726
2017-05-31	0.0006	0.0106	0.05041626	0.049816257
2017-06-30	0.0006	0.0078	0.0181938	0.017593799
2017-07-31	0.0007	0.0187	-0.03371926	-0.034419257
2017-08-31	0.0009	0.0016	0.02154696	0.020646956
2017-09-29	0.0009	0.0251	0.02730967	0.026409667
2017-10-31	0.0009	0.0225	0.09666484	0.095764845
2017-11-30	0.0008	0.0312	0.06161759	0.060817588
2017-12-29	0.0009	0.0106	-0.03195711	-0.032857109
2018-01-31	0.0012	0.0557	0.06428175	0.063081749
2018-02-28	0.0011	-0.0365	-0.05439602	-0.05549602
2018-03-29	0.0011	-0.0235	-0.06789515	-0.068995146
2018-04-30	0.0014	0.0029	-0.1144771	-0.115877101
2018-05-31	0.0014	0.0265	0.02149616	0.020096159
2018-06-29	0.0014	0.0048	-0.00258579	-0.003985793
2018-07-31	0.0016	0.0319	0.07930071	0.07770071
2018-08-31	0.0016	0.0344	6.983E-05	-0.00153017
2018-09-28	0.0015	0.0006	-0.00099537	-0.002495367
2018-10-31	0.0019	-0.0768	-0.09705329	-0.09895329
2018-11-30	0.0018	0.0169	0.10030118	0.098501178
2018-12-31	0.002	-0.0957	-0.08359015	-0.085590151
2019-01-31	0.0021	0.084	0.05122246	0.049122456
2019-02-28	0.0018	0.034	0.04267272	0.040872722
2019-03-29	0.0019	0.011	0.00188033	-1.96707E-05
2019-04-30	0.0021	0.0397	-0.08792927	-0.090029271
2019-05-31	0.0021	-0.0694	-0.14971805	-0.151818049
2019-06-28	0.0018	0.0693	0.08507012	0.083270118
2019-07-31	0.0019	0.0119	0.00796086	0.006060856
2019-08-30	0.0016	-0.0258	-0.06590622	-0.06750622
2019-09-30	0.0018	0.0143	0.01657193	0.014771934
2019-10-31	0.0016	0.0206	0.00358877	0.001988766
2019-11-29	0.0012	0.0388	0.03794354	0.036743539
2019-12-31	0.0014	0.0277	0.03917097	0.037770973
2020-01-31	0.0013	-0.0011	-0.1006688	-0.101968796
2020-02-28	0.0012	-0.0813	-0.05071696	-0.051916957
2020-03-31	0.0013	-0.1339	-0.08529892	-0.086598918
2020-04-30	0	0.1365	0.11288533	0.112885329
2020-05-29	0.0001	0.0558	0.04013369	0.040033691
2020-06-30	0.0001	0.0246	-0.0028766	-0.002976596
2020-07-31	0.0001	0.0577	-0.03538671	-0.03548671
2020-08-31	0.0001	0.0763	0.09325364	0.093153643
2020-09-30	0.0001	-0.0363	-0.01742086	-0.017520856

2020-10-30	0.0001	-0.021	-0.00137366	-0.001473664
2020-11-30	0.0001	0.1247	0.08908198	0.088981985
2020-12-31	0.0001	0.0463	0.01192638	0.011826376
2021-01-29	0.0001	-0.0003	0.00497749	0.004877489
2021-02-26	0	0.0278	0.00490769	0.004907688
2021-03-31	0	0.0308	0.10065066	0.100650663
2021-04-30	0	0.0493	0.02314736	0.023147362
2021-05-28	0	0.0029	0.0374873	0.037487296
2021-06-30	0	0.0275	-0.02171987	-0.021719874
2021-07-30	0	0.0127	-0.00347358	-0.003473582
2021-08-31	0	0.0291	-0.00866751	-0.008667514
2021-09-30	0	-0.0437	-0.09920937	-0.099209369
2021-10-29	0	0.0665	0.01858407	0.018584074
2021-11-30	0	-0.0155	-0.0404759	-0.040475902
2021-12-31	0.0001	0.031	0.04463656	0.044536556
2022-01-31	0	-0.0625	-0.06536034	-0.065360335
2022-02-28	0	-0.0229	-0.09565119	-0.095651185
2022-03-31	0.0001	0.0306	0.00154725	0.001447251
2022-04-29	0.0001	-0.0946	-0.03129979	-0.03139979
2022-05-31	0.0003	-0.0034	0.04564967	0.045349675
2022-06-30	0.0006	-0.0844	-0.13316373	-0.133763734
2022-07-29	0.0008	0.0957	0.10686992	0.106069917
2022-08-31	0.0019	-0.0377	-0.12296806	-0.124868061
2022-09-30	0.0019	-0.0935	-0.11137958	-0.113279582
2022-10-31	0.0023	0.0783	0.1383707	0.136070699
2022-11-30	0.0029	0.0461	0.01316684	0.010266843
2022-12-30	0.0033	-0.0641	-0.04802734	-0.051327342
2023-01-31	0.0035	0.0664	-0.04036005	-0.043860055
2023-02-28	0.0034	-0.0259	-0.05124308	-0.054643075
2023-03-31	0.0036	0.0251	-0.02441147	-0.028011472
2023-04-28	0.0035	0.0061	0.0105612	0.007061196
2023-05-31	0.0036	0.0035	-0.10831574	-0.111915737
2023-06-30	0.004	0.0647	0.07266031	0.068660314
2023-07-31	0.0045	0.0321	0.11399825	0.109498252
2023-08-31	0.0045	-0.0239	-0.02896942	-0.033469415
2023-09-29	0.0043	-0.0524	-0.12234026	-0.126640259
2023-10-31	0.0047	-0.0318	-0.02852026	-0.033220259
2023-11-30	0.0044	0.0883	0.10635268	0.101952677
2023-12-29	0.0043	0.0487	0.10346135	0.099161346
2024-01-31	0.0047	0.007	-0.13693729	-0.141637291
2024-02-29	0.0042	0.0507	-0.00767581	-0.011875807
2024-03-28	0.0043	0.0283	0.15143244	0.147132441
2024-04-30	0.0047	-0.0467	0.07813659	0.073436592
2024-05-31	0.0044	0.0434	0.04491255	0.040512551
2024-06-28	0.0041	0.0277	0.02047059	0.01637059
2024-07-31	0.0045	0.0124	0.24816552	0.243665524
2024-08-30	0.0048	0.0161	0.06158435	0.056784345

Initial investment 10000000

Beta stock
Cost of equity monthly
Cost of equity
Cost of debt
WACC

Time passed	Expected cash flows	
1	1	1000000
2	2	2000000
3	3	2000000
4	4	2000000
5	5	4000000

NPV

Bond maturity	Amount	Bond yield
1 year	0	0.0464
1.5 year	0	0.0459
2 years	3000000	0.0457
2.5 years	0	0.0456
3 years	0	0.0457
3.5 years	0	0.0459
4 years	0	0.0462
4.5 years	0	0.0465
5 years	2000000	0.0469

Equity issued 5000000
Debt issued 5000000
Tax rate 0.2

0.80529845
0.006137661
0.076189791
0.04618
0.056566896

-923509.8368

PERFECT CAPITAL MARKETS (NO TAXES)

Existing equity	100000000	New equity issued	0
Existing debt	50000000	New debt issued	10000000
Cost of equity	0.06		
Cost of debt	0.03	New cost of equity	0.062
Tax rate	0	New WACC	0.05
WACC	0.05		
Unlevered cost of equity	0.05		

WITH CORPORATE TAXES

Existing equity	100000000	New equity issued	0
Existing debt	50000000	New debt issued	10000000
Cost of equity	0.06		
Cost of debt	0.03	New cost of equity	0.061714
Tax rate	0.2	New WACC	0.047571
WACC	0.048		
Unlevered cost of equity	0.0514286		

New equity issued	10000000
New debt issued	0

New cost of equity	0.059091
New WACC	0.05

New equity issued	10000000
New debt issued	0

New cost of equity	0.059221
New WACC	0.048214