Time Value of Money

Table 1: Discount Factors: Present Value of $ 1

t	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%
1	0,9901	0,9804	0,9709	0,9615	0,9524	0,9434	0,9346	0,9259	0,9174	0,9091	0,8929	0,8772
2	0,9803	0,9612	0,9426	0,9246	0,9070	0,8900	0,8734	0,8573	0,8417	0,8264	0,7972	0,7695
3	0,9706	0,9423	0,9151	0,8890	0,8638	0,8396	0,8163	0,7938	0,7722	0,7513	0,7118	0,6750
4	0,9610	0,9238	0,8885	0,8548	0,8227	0,7921	0,7629	0,7350	0,7084	0,6830	0,6355	0,5921
5	0,9515	0,9057	0,8626	0,8219	0,7835	0,7473	0,7130	0,6806	0,6499	0,6209	0,5674	0,5194
6	0,9420	0,8880	0,8375	0,7903	0,7462	0,7050	0,6663	0,6302	0,5963	0,5645	0,5066	0,4556
7	0,9327	0,8706	0,8131	0,7599	0,7107	0,6651	0,6227	0,5835	0,5470	0,5132	0,4523	0,3996
8	0,9235	0,8535	0,7894	0,7307	0,6768	0,6274	0,5820	0,5403	0,5019	0,4665	0,4039	0,3506
9	0,9143	0,8368	0,7664	0,7026	0,6446	0,5919	0,5439	0,5002	0,4604	0,4241	0,3606	0,3075
10	0,9053	0,8203	0,7441	0,6756	0,6139	0,5584	0,5083	0,4632	0,4224	0,3855	0,3220	0,2697
11	0,8963	0,8043	0,7224	0,6496	0,5847	0,5268	0,4751	0,4289	0,3875	0,3505	0,2875	0,2366
12	0,8874	0,7885	0,7014	0,6246	0,5568	0,4970	0,4440	0,3971	0,3555	0,3186	0,2567	0,2076
13	0,8787	0,7730	0,6810	0,6006	0,5303	0,4688	0,4150	0,3677	0,3262	0,2897	0,2292	0,1821
14	0,8700	0,7579	0,6611	0,5775	0,5051	0,4423	0,3878	0,3405	0,2992	0,2633	0,2046	0,1597
15	0,8613	0,7430	0,6419	0,5553	0,4810	0,4173	0,3624	0,3152	0,2745	0,2394	0,1827	0,1401
16	0,8528	0,7284	0,6232	0,5339	0,4581	0,3936	0,3387	0,2919	0,2519	0,2176	0,1631	0,1229
17	0,8444	0,7142	0,6050	0,5134	0,4363	0,3714	0,3166	0,2703	0,2311	0,1978	0,1456	0,1078
18	0,8360	0,7002	0,5874	0,4936	0,4155	0,3503	0,2959	0,2502	0,2120	0,1799	0,1300	0,0946
19	0,8277	0,6864	0,5703	0,4746	0,3957	0,3305	0,2765	0,2317	0,1945	0,1635	0,1161	0,0829
20	0,8195	0,6730	0,5537	0,4564	0,3769	0,3118	0,2584	0,2145	0,1784	0,1486	0,1037	0,0728
21	0,8114	0,6598	0,5375	0,4388	0,3589	0,2942	0,2415	0,1987	0,1637	0,1351	0,0926	0,0638
22	0,8034	0,6468	0,5219	0,4220	0,3418	0,2775	0,2257	0,1839	0,1502	0,1228	0,0826	0,0560
23	0,7954	0,6342	0,5067	0,4057	0,3256	0,2618	0,2109	0,1703	0,1378	0,1117	0,0738	0,0491
24	0,7876	0,6217	0,4919	0,3901	0,3101	0,2470	0,1971	0,1577	0,1264	0,1015	0,0659	0,0431
36	0,6989	0,4902	0,3450	0,2437	0,1727	0,1227	0,0875	0,0626	0,0449	0,0323	0,0169	0,0089
40	0,6717	0,4529	0,3066	0,2083	0,1420	0,0972	0,0668	0,0460	0,0318	0,0221	0,0107	0,0053

Table 2: Future Value of $ 1

t	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%
1	1,0100	1,0203	1,0308	1,0415	1,0524	1,0632	1,0746	1,0862	1,0981	1,1103	1,1341	1,1602
2	1,0201	1,0404	1,0609	1,0816	1,1025	1,1236	1,1449	1,1664	1,1881	1,2100	1,2544	1,2996
3	1,0303	1,0612	1,0927	1,1249	1,1576	1,1910	1,2250	1,2597	1,2950	1,3310	1,4049	1,4815
4	1,0406	1,0824	1,1255	1,1699	1,2155	1,2625	1,3108	1,3605	1,4116	1,4641	1,5735	1,6890
5	1,0510	1,1041	1,1593	1,2167	1,2763	1,3382	1,4026	1,4693	1,5386	1,6105	1,7623	1,9254
6	1,0615	1,1262	1,1941	1,2653	1,3401	1,4185	1,5007	1,5869	1,6771	1,7716	1,9738	2,1950
7	1,0721	1,1487	1,2299	1,3159	1,4071	1,5036	1,6058	1,7138	1,8280	1,9487	2,2107	2,5023
8	1,0829	1,1717	1,2668	1,3686	1,4775	1,5938	1,7182	1,8509	1,9926	2,1436	2,4760	2,8526
9	1,0937	1,1951	1,3048	1,4233	1,5513	1,6895	1,8385	1,9990	2,1719	2,3579	2,7731	3,2519
10	1,1046	1,2190	1,3439	1,4802	1,6289	1,7908	1,9672	2,1589	2,3674	2,5937	3,1058	3,7072
11	1,1157	1,2434	1,3842	1,5395	1,7103	1,8983	2,1049	2,3316	2,5804	2,8531	3,4785	4,2262
12	1,1268	1,2682	1,4258	1,6010	1,7959	2,0122	2,2522	2,5182	2,8127	3,1384	3,8960	4,8179
13	1,1381	1,2936	1,4685	1,6651	1,8856	2,1329	2,4098	2,7196	3,0658	3,4523	4,3635	5,4924
14	1,1495	1,3195	1,5126	1,7317	1,9799	2,2609	2,5785	2,9372	3,3417	3,7975	4,8871	6,2613
15	1,1610	1,3459	1,5580	1,8009	2,0789	2,3966	2,7590	3,1722	3,6425	4,1772	5,4736	7,1379
16	1,1726	1,3728	1,6047	1,8730	2,1829	2,5404	2,9522	3,4259	3,9703	4,5950	6,1304	8,1372
17	1,1843	1,4002	1,6528	1,9479	2,2920	2,6928	3,1588	3,7000	4,3276	5,0545	6,8660	9,2765
18	1,1961	1,4282	1,7024	2,0258	2,4066	2,8543	3,3799	3,9960	4,7171	5,5599	7,6900	10,5752
19	1,2081	1,4568	1,7535	2,1068	2,5270	3,0256	3,6165	4,3157	5,1417	6,1159	8,6128	12,0557
20	1,2202	1,4859	1,8061	2,1911	2,6533	3,2071	3,8697	4,6610	5,6044	6,7275	9,6463	13,7435
21	1,2324	1,5157	1,8603	2,2788	2,7860	3,3996	4,1406	5,0338	6,1088	7,4002	10,8038	15,6676
22	1,2447	1,5460	1,9161	2,3699	2,9253	3,6035	4,4304	5,4365	6,6586	8,1403	12,1003	17,8610
23	1,2572	1,5769	1,9736	2,4647	3,0715	3,8197	4,7405	5,8715	7,2579	8,9543	13,5523	20,3616
24	1,2697	1,6084	2,0328	2,5633	3,2251	4,0489	5,0724	6,3412	7,9111	9,8497	15,1786	23,2122
36	1,4308	2,0399	2,8983	4,1039	5,7918	8,1473	11,4239	15,9682	22,2512	30,9127	59,1356	111,8342
40	1,4889	2,2080	3,2620	4,8010	7,0400	10,2857	14,9745	21,7245	31,4094	45,2593	93,0510	188,8835

Table 3: Present Value of and Ordinary Annuity of $ 1

t	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%
1	0,9901	0,9804	0,9709	0,9615	0,9524	0,9434	0,9346	0,9259	0,9174	0,9091	0,8929	0,8772
2	1,9704	1,9416	1,9135	1,8861	1,8594	1,8334	1,8080	1,7833	1,7591	1,7355	1,6901	1,6467
3	2,9410	2,8839	2,8286	2,7751	2,7232	2,6730	2,6243	2,5771	2,5313	2,4869	2,4018	2,3216
4	3,9020	3,8077	3,7171	3,6299	3,5460	3,4651	3,3872	3,3121	3,2397	3,1699	3,0373	2,9137
5	4,8534	4,7135	4,5797	4,4518	4,3295	4,2124	4,1002	3,9927	3,8897	3,7908	3,6048	3,4331
6	5,7955	5,6014	5,4172	5,2421	5,0757	4,9173	4,7665	4,6229	4,4859	4,3553	4,1114	3,8887
7	6,7282	6,4720	6,2303	6,0021	5,7864	5,5824	5,3893	5,2064	5,0330	4,8684	4,5638	4,2883
8	7,6517	7,3255	7,0197	6,7327	6,4632	6,2098	5,9713	5,7466	5,5348	5,3349	4,9676	4,6389
9	8,5660	8,1622	7,7861	7,4353	7,1078	6,8017	6,5152	6,2469	5,9952	5,7590	5,3282	4,9464
10	9,4713	8,9826	8,5302	8,1109	7,7217	7,3601	7,0236	6,7101	6,4177	6,1446	5,6502	5,2161
11	10,3676	9,7868	9,2526	8,7605	8,3064	7,8869	7,4987	7,1390	6,8052	6,4951	5,9377	5,4527
12	11,2551	10,5753	9,9540	9,3851	8,8633	8,3838	7,9427	7,5361	7,1607	6,8137	6,1944	5,6603
13	12,1337	11,3484	10,6350	9,9856	9,3936	8,8527	8,3577	7,9038	7,4869	7,1034	6,4235	5,8424
14	13,0037	12,1062	11,2961	10,5631	9,8986	9,2950	8,7455	8,2442	7,7862	7,3667	6,6282	6,0021
15	13,8651	12,8493	11,9379	11,1184	10,3797	9,7122	9,1079	8,5595	8,0607	7,6061	6,8109	6,1422
16	14,7179	13,5777	12,5611	11,6523	10,8378	10,1059	9,4466	8,8514	8,3126	7,8237	6,9740	6,2651
17	15,5623	14,2919	13,1661	12,1657	11,2741	10,4773	9,7632	9,1216	8,5436	8,0216	7,1196	6,3729
18	16,3983	14,9920	13,7535	12,6593	11,6896	10,8276	10,0591	9,3719	8,7556	8,2014	7,2497	6,4674
19	17,2260	15,6785	14,3238	13,1339	12,0853	11,1581	10,3356	9,6036	8,9501	8,3649	7,3658	6,5504
20	18,0456	16,3514	14,8775	13,5903	12,4622	11,4699	10,5940	9,8181	9,1285	8,5136	7,4694	6,6231
21	18,8570	17,0112	15,4150	14,0292	12,8212	11,7641	10,8355	10,0168	9,2922	8,6487	7,5620	6,6870
22	19,6604	17,6580	15,9369	14,4511	13,1630	12,0416	11,0612	10,2007	9,4424	8,7715	7,6446	6,7429
23	20,4558	18,2922	16,4436	14,8568	13,4886	12,3034	11,2722	10,3711	9,5802	8,8832	7,7184	6,7921
24	21,2434	18,9139	16,9355	15,2470	13,7986	12,5504	11,4693	10,5288	9,7066	8,9847	7,7843	6,8351
36	30,1075	25,4888	21,8323	18,9083	16,5469	14,6210	13,0352	11,7172	10,6118	9,6765	8,1924	7,0790
40	32,8347	27,3555	23,1148	19,7928	17,1591	15,0463	13,3317	11,9246	10,7574	9,7791	8,2438	7,1050

Table 4: Future Value of an Ordinary Annuity of $ 1

t	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%
1	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000
2	2,0100	2,0200	2,0300	2,0400	2,0500	2,0600	2,0700	2,0800	2,0900	2,1000	2,1200	2,1400
3	3,0301	3,0604	3,0909	3,1216	3,1525	3,1836	3,2149	3,2464	3,2781	3,3100	3,3744	3,4396
4	4,0604	4,1216	4,1836	4,2465	4,3101	4,3746	4,4399	4,5061	4,5731	4,6410	4,7793	4,9211
5	5,1010	5,2040	5,3091	5,4163	5,5256	5,6371	5,7507	5,8666	5,9847	6,1051	6,3528	6,6101
6	6,1520	6,3081	6,4684	6,6330	6,8019	6,9753	7,1533	7,3359	7,5233	7,7156	8,1152	8,5355
7	7,2135	7,4343	7,6625	7,8983	8,1420	8,3938	8,6540	8,9228	9,2004	9,4872	10,0890	10,7305
8	8,2857	8,5830	8,8923	9,2142	9,5491	9,8975	10,2598	10,6366	11,0285	11,4359	12,2997	13,2328
9	9,3685	9,7546	10,1591	10,5828	11,0266	11,4913	11,9780	12,4876	13,0210	13,5795	14,7757	16,0853
10	10,4622	10,9497	11,4639	12,0061	12,5779	13,1808	13,8164	14,4866	15,1929	15,9374	17,5487	19,3373
11	11,5668	12,1687	12,8078	13,4864	14,2068	14,9716	15,7836	16,6455	17,5603	18,5312	20,6546	23,0445
12	12,6825	13,4121	14,1920	15,0258	15,9171	16,8699	17,8885	18,9771	20,1407	21,3843	24,1331	27,2707
13	13,8093	14,6803	15,6178	16,6268	17,7130	18,8821	20,1406	21,4953	22,9534	24,5227	28,0291	32,0887
14	14,9474	15,9739	17,0863	18,2919	19,5986	21,0151	22,5505	24,2149	26,0192	27,9750	32,3926	37,5811
15	16,0969	17,2934	18,5989	20,0236	21,5786	23,2760	25,1290	27,1521	29,3609	31,7725	37,2797	43,8424
16	17,2579	18,6393	20,1569	21,8245	23,6575	25,6725	27,8881	30,3243	33,0034	35,9497	42,7533	50,9804
17	18,4304	20,0121	21,7616	23,6975	25,8404	28,2129	30,8402	33,7502	36,9737	40,5447	48,8837	59,1176
18	19,6147	21,4123	23,4144	25,6454	28,1324	30,9057	33,9990	37,4502	41,3013	45,5992	55,7497	68,3941
19	20,8109	22,8406	25,1169	27,6712	30,5390	33,7600	37,3790	41,4463	46,0185	51,1591	63,4397	78,9692
20	22,0190	24,2974	26,8704	29,7781	33,0660	36,7856	40,9955	45,7620	51,1601	57,2750	72,0524	91,0249
21	23,2392	25,7833	28,6765	31,9692	35,7193	39,9927	44,8652	50,4229	56,7645	64,0025	81,6987	104,7684
22	24,4716	27,2990	30,5368	34,2480	38,5052	43,3923	49,0057	55,4568	62,8733	71,4027	92,5026	120,4360
23	25,7163	28,8450	32,4529	36,6179	41,4305	46,9958	53,4361	60,8933	69,5319	79,5430	104,6029	138,2970
24	26,9735	30,4219	34,4265	39,0826	44,5020	50,8156	58,1767	66,7648	76,7898	88,4973	118,1552	158,6586
36	43,0769	51,9944	63,2759	77,5983	95,8363	119,1209	148,9135	187,1021	236,1247	299,1268	484,4631	791,6729
40	48,8864	60,4020	75,4013	95,0255	120,7998	154,7620	199,6351	259,0565	337,8824	442,5926	767,0914	1342,0251