Finance

Fundamentals of Corporate Finance **Volume 2**

David Whitehurst

UMIST

McGraw-Hill/Irwin
A Division of The McGraw-Hill Companies

McGraw–Hill Primis

ISBN: 0–390–31999–6

Text:

Fundamentals of Corporate Finance, Sixth Edition, Alternate Edition
Ross et al.

This book was printed on recycled paper.

Finance

http://www.mhhe.com/primis/online/

111 FINA ISBN: 0–390–31999–6

Finance

Volume 2

Ross et al. • *Fundamentals of Corporate Finance, Sixth Edition, Alternate Edition*

Back Matter	**917**
Appendix A: Mathematical Tables	**917**
Appendix B: Key Equations	**927**
Appendix C: Answers to Selected End–of–Chapter Problems	**932**
Names Index	**938**
Equation Index	**940**
Subject Index	**942**

APPENDIX

A

Mathematical Tables

Table A.1
Future value of $1 at the end of t periods $= (1 + r)^t$

Table A.2
Present value of $1 to be received after t periods $= 1/(1 + r)^t$

Table A.3
Present value of an annuity of $1 per period for t periods $= [1 - 1/(1 + r)^t]/r$

Table A.4
Future value of an annuity of $1 per period for t periods $= [(1 + r)^t - 1]/r$

Table A.5
Cumulative normal distribution

TABLE A.1 Future value of $1 at the end of t periods = $(1 + r)^t$

	Interest Rate								
Period	**1%**	**2%**	**3%**	**4%**	**5%**	**6%**	**7%**	**8%**	**9%**
1	1.0100	1.0200	1.0300	1.0400	1.0500	1.0600	1.0700	1.0800	1.0900
2	1.0201	1.0404	1.0609	1.0816	1.1025	1.1236	1.1449	1.1664	1.1881
3	1.0303	1.0612	1.0927	1.1249	1.1576	1.1910	1.2250	1.2597	1.2950
4	1.0406	1.0824	1.1255	1.1699	1.2155	1.2625	1.3108	1.3605	1.4116
5	1.0510	1.1041	1.1593	1.2167	1.2763	1.3382	1.4026	1.4693	1.5386
6	1.0615	1.1262	1.1941	1.2653	1.3401	1.4185	1.5007	1.5869	1.6771
7	1.0721	1.1487	1.2299	1.3159	1.4071	1.5036	1.6058	1.7138	1.8280
8	1.0829	1.1717	1.2668	1.3686	1.4775	1.5938	1.7182	1.8509	1.9926
9	1.0937	1.1951	1.3048	1.4233	1.5513	1.6895	1.8385	1.9990	2.1719
10	1.1046	1.2190	1.3439	1.4802	1.6289	1.7908	1.9672	2.1589	2.3674
11	1.1157	1.2434	1.3842	1.5395	1.7103	1.8983	2.1049	2.3316	2.5804
12	1.1268	1.2682	1.4258	1.6010	1.7959	2.0122	2.2522	2.5182	2.8127
13	1.1381	1.2936	1.4685	1.6651	1.8856	2.1329	2.4098	2.7196	3.0658
14	1.1495	1.3195	1.5126	1.7317	1.9799	2.2609	2.5785	2.9372	3.3417
15	1.1610	1.3459	1.5580	1.8009	2.0789	2.3966	2.7590	3.1722	3.6425
16	1.1726	1.3728	1.6047	1.8730	2.1829	2.5404	2.9522	3.4259	3.9703
17	1.1843	1.4002	1.6528	1.9479	2.2920	2.6928	3.1588	3.7000	4.3276
18	1.1961	1.4282	1.7024	2.0258	2.4066	2.8543	3.3799	3.9960	4.7171
19	1.2081	1.4568	1.7535	2.1068	2.5270	3.0256	3.6165	4.3157	5.1417
20	1.2202	1.4859	1.8061	2.1911	2.6533	3.2071	3.8697	4.6610	5.6044
21	1.2324	1.5157	1.8603	2.2788	2.7860	3.3996	4.1406	5.0338	6.1088
22	1.2447	1.5460	1.9161	2.3699	2.9253	3.6035	4.4304	5.4365	6.6586
23	1.2572	1.5769	1.9736	2.4647	3.0715	3.8197	4.7405	5.8715	7.2579
24	1.2697	1.6084	2.0328	2.5633	3.2251	4.0489	5.0724	6.3412	7.9111
25	1.2824	1.6406	2.0938	2.6658	3.3864	4.2919	5.4274	6.8485	8.6231
30	1.3478	1.8114	2.4273	3.2434	4.3219	5.7435	7.6123	10.063	13.268
40	1.4889	2.2080	3.2620	4.8010	7.0400	10.286	14.974	21.725	31.409
50	1.6446	2.6916	4.3839	7.1067	11.467	18.420	29.457	46.902	74.358
60	1.8167	3.2810	5.8916	10.520	18.679	32.988	57.946	101.26	176.03

Continued on next page

10%	12%	14%	15%	16%	18%	20%	24%	28%	32%	36%
1.1000	1.1200	1.1400	1.1500	1.1600	1.1800	1.2000	1.2400	1.2800	1.3200	1.3600
1.2100	1.2544	1.2996	1.3225	1.3456	1.3924	1.4400	1.5376	1.6384	1.7424	1.8496
1.3310	1.4049	1.4815	1.5209	1.5609	1.6430	1.7280	1.9066	2.0972	2.3000	2.5155
1.4641	1.5735	1.6890	1.7490	1.8106	1.9388	2.0736	2.3642	2.6844	3.0360	3.4210
1.6105	1.7623	1.9254	2.0114	2.1003	2.2878	2.4883	2.9316	3.4360	4.0075	4.6526
1.7716	1.9738	2.1950	2.3131	2.4364	2.6996	2.9860	3.6352	4.3980	5.2899	6.3275
1.9487	2.2107	2.5023	2.6600	2.8262	3.1855	3.5832	4.5077	5.6295	6.9826	8.6054
2.1436	2.4760	2.8526	3.0590	3.2784	3.7589	4.2998	5.5895	7.2058	9.2170	11.703
2.3579	2.7731	3.2519	3.5179	3.8030	4.4355	5.1598	6.9310	9.2234	12.166	15.917
2.5937	3.1058	3.7072	4.0456	4.4114	5.2338	6.1917	8.5944	11.806	16.060	21.647
2.8531	3.4785	4.2262	4.6524	5.1173	6.1759	7.4301	10.657	15.112	21.199	29.439
3.1384	3.8960	4.8179	5.3503	5.9360	7.2876	8.9161	13.215	19.343	27.983	40.037
3.4523	4.3635	5.4924	6.1528	6.8858	8.5994	10.699	16.386	24.759	36.937	54.451
3.7975	4.8871	6.2613	7.0757	7.9875	10.147	12.839	20.319	31.691	48.757	74.053
4.1772	5.4736	7.1379	8.1371	9.2655	11.974	15.407	25.196	40.565	64.359	100.71
4.5950	6.1304	8.1372	9.3576	10.748	14.129	18.488	31.243	51.923	84.954	136.97
5.0545	6.8660	9.2765	10.761	12.468	16.672	22.186	38.741	66.461	112.14	186.28
5.5599	7.6900	10.575	12.375	14.463	19.673	26.623	48.039	85.071	148.02	253.34
6.1159	8.6128	12.056	14.232	16.777	23.214	31.948	59.568	108.89	195.39	344.54
6.7275	9.6463	13.743	16.367	19.461	27.393	38.338	73.864	139.38	257.92	468.57
7.4002	10.804	15.668	18.822	22.574	32.324	46.005	91.592	178.41	340.45	637.26
8.1403	12.100	17.861	21.645	26.186	38.142	55.206	113.57	228.36	449.39	866.67
8.9543	13.552	20.362	24.891	30.376	45.008	66.247	140.83	292.30	593.20	1178.7
9.8497	15.179	23.212	28.625	35.236	53.109	79.497	174.63	374.14	783.02	1603.0
10.835	17.000	26.462	32.919	40.874	62.669	95.396	216.54	478.90	1033.6	2180.1
17.449	29.960	50.950	66.212	85.850	143.37	237.38	634.82	1645.5	4142.1	10143.
45.259	93.051	188.88	267.86	378.72	750.38	1469.8	5455.9	19427.	66521.	*
117.39	289.00	700.23	1083.7	1670.7	3927.4	9100.4	46890.	*	*	*
304.48	897.60	2595.9	4384.0	7370.2	20555.	56348.	*	*	*	*

*The factor is greater than 99,999.

TABLE A.2 Present value of $1 to be received after t periods = $1/(1 + r)^t$

	Interest Rate								
Period	**1%**	**2%**	**3%**	**4%**	**5%**	**6%**	**7%**	**8%**	**9%**
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174
2	0.9803	0.9612	0.9426	0.9246	0.9070	0.8900	0.8734	0.8573	0.8417
3	0.9706	0.9423	0.9151	0.8890	0.8638	0.8396	0.8163	0.7938	0.7722
4	0.9610	0.9238	0.8885	0.8548	0.8227	0.7921	0.7629	0.7350	0.7084
5	0.9515	0.9057	0.8626	0.8219	0.7835	0.7473	0.7130	0.6806	0.6499
6	0.9420	0.8880	0.8375	0.7903	0.7462	0.7050	0.6663	0.6302	0.5963
7	0.9327	0.8706	0.8131	0.7599	0.7107	0.6651	0.6227	0.5835	0.5470
8	0.9235	0.8535	0.7894	0.7307	0.6768	0.6274	0.5820	0.5403	0.5019
9	0.9143	0.8368	0.7664	0.7026	0.6446	0.5919	0.5439	0.5002	0.4604
10	0.9053	0.8203	0.7441	0.6756	0.6139	0.5584	0.5083	0.4632	0.4224
11	0.8963	0.8043	0.7224	0.6496	0.5847	0.5268	0.4751	0.4289	0.3875
12	0.8874	0.7885	0.7014	0.6246	0.5568	0.4970	0.4440	0.3971	0.3555
13	0.8787	0.7730	0.6810	0.6006	0.5303	0.4688	0.4150	0.3677	0.3262
14	0.8700	0.7579	0.6611	0.5775	0.5051	0.4423	0.3878	0.3405	0.2992
15	0.8613	0.7430	0.6419	0.5553	0.4810	0.4173	0.3624	0.3152	0.2745
16	0.8528	0.7284	0.6232	0.5339	0.4581	0.3936	0.3387	0.2919	0.2519
17	0.8444	0.7142	0.6050	0.5134	0.4363	0.3714	0.3166	0.2703	0.2311
18	0.8360	0.7002	0.5874	0.4936	0.4155	0.3503	0.2959	0.2502	0.2120
19	0.8277	0.6864	0.5703	0.4746	0.3957	0.3305	0.2765	0.2317	0.1945
20	0.8195	0.6730	0.5537	0.4564	0.3769	0.3118	0.2584	0.2145	0.1784
21	0.8114	0.6598	0.5375	0.4388	0.3589	0.2942	0.2415	0.1987	0.1637
22	0.8034	0.6468	0.5219	0.4220	0.3418	0.2775	0.2257	0.1839	0.1502
23	0.7954	0.6342	0.5067	0.4057	0.3256	0.2618	0.2109	0.1703	0.1378
24	0.7876	0.6217	0.4919	0.3901	0.3101	0.2470	0.1971	0.1577	0.1264
25	0.7798	0.6095	0.4776	0.3751	0.2953	0.2330	0.1842	0.1460	0.1160
30	0.7419	0.5521	0.4120	0.3083	0.2314	0.1741	0.1314	0.0994	0.0754
40	0.6717	0.4529	0.3066	0.2083	0.1420	0.0972	0.0668	0.0460	0.0318
50	0.6080	0.3715	0.2281	0.1407	0.0872	0.0543	0.0339	0.0213	0.0134

Continued on next page

10%	12%	14%	15%	16%	18%	20%	24%	28%	32%	36%
0.9091	0.8929	0.8772	0.8696	0.8621	0.8475	0.8333	0.8065	0.7813	0.7576	0.7353
0.8264	0.7972	0.7695	0.7561	0.7432	0.7182	0.6944	0.6504	0.6104	0.5739	0.5407
0.7513	0.7118	0.6750	0.6575	0.6407	0.6086	0.5787	0.5245	0.4768	0.4348	0.3975
0.6830	0.6355	0.5921	0.5718	0.5523	0.5158	0.4823	0.4230	0.3725	0.3294	0.2923
0.6209	0.5674	0.5194	0.4972	0.4761	0.4371	0.4019	0.3411	0.2910	0.2495	0.2149
0.5645	0.5066	0.4556	0.4323	0.4104	0.3704	0.3349	0.2751	0.2274	0.1890	0.1580
0.5132	0.4523	0.3996	0.3759	0.3538	0.3139	0.2791	0.2218	0.1776	0.1432	0.1162
0.4665	0.4039	0.3506	0.3269	0.3050	0.2660	0.2326	0.1789	0.1388	0.1085	0.0854
0.4241	0.3606	0.3075	0.2843	0.2630	0.2255	0.1938	0.1443	0.1084	0.0822	0.0628
0.3855	0.3220	0.2697	0.2472	0.2267	0.1911	0.1615	0.1164	0.0847	0.0623	0.0462
0.3505	0.2875	0.2366	0.2149	0.1954	0.1619	0.1346	0.0938	0.0662	0.0472	0.0340
0.3186	0.2567	0.2076	0.1869	0.1685	0.1372	0.1122	0.0757	0.0517	0.0357	0.0250
0.2897	0.2292	0.1821	0.1625	0.1452	0.1163	0.0935	0.0610	0.0404	0.0271	0.0184
0.2633	0.2046	0.1597	0.1413	0.1252	0.0985	0.0779	0.0492	0.0316	0.0205	0.0135
0.2394	0.1827	0.1401	0.1229	0.1079	0.0835	0.0649	0.0397	0.0247	0.0155	0.0099
0.2176	0.1631	0.1229	0.1069	0.0930	0.0708	0.0541	0.0320	0.0193	0.0118	0.0073
0.1978	0.1456	0.1078	0.0929	0.0802	0.0600	0.0451	0.0258	0.0150	0.0089	0.0054
0.1799	0.1300	0.0946	0.0808	0.0691	0.0508	0.0376	0.0208	0.0118	0.0068	0.0039
0.1635	0.1161	0.0829	0.0703	0.0596	0.0431	0.0313	0.0168	0.0092	0.0051	0.0029
0.1486	0.1037	0.0728	0.0611	0.0514	0.0365	0.0261	0.0135	0.0072	0.0039	0.0021
0.1351	0.0926	0.0638	0.0531	0.0443	0.0309	0.0217	0.0109	0.0056	0.0029	0.0016
0.1228	0.0826	0.0560	0.0462	0.0382	0.0262	0.0181	0.0088	0.0044	0.0022	0.0012
0.1117	0.0738	0.0491	0.0402	0.0329	0.0222	0.0151	0.0071	0.0034	0.0017	0.0008
0.1015	0.0659	0.0431	0.0349	0.0284	0.0188	0.0126	0.0057	0.0027	0.0013	0.0006
0.0923	0.0588	0.0378	0.0304	0.0245	0.0160	0.0105	0.0046	0.0021	0.0010	0.0005
0.0573	0.0334	0.0196	0.0151	0.0116	0.0070	0.0042	0.0016	0.0006	0.0002	0.0001
0.0221	0.0107	0.0053	0.0037	0.0026	0.0013	0.0007	0.0002	0.0001	*	*
0.0085	0.0035	0.0014	0.0009	0.0006	0.0003	0.0001	*	*	*	*

*The factor is zero to four decimal places.

TABLE A.3 Present value of an annuity of $1 per period for t periods = $[1 - 1/(1 + r)^t]/r$

Number of Periods	Interest Rate								
	1%	2%	3%	4%	5%	6%	7%	8%	9%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174
2	1.9704	1.9416	1.9135	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591
3	2.9410	2.8839	2.8286	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313
4	3.9020	3.8077	3.7171	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397
5	4.8534	4.7135	4.5797	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897
6	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859
7	6.7282	6.4720	6.2303	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330
8	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348
9	8.5660	8.1622	7.7861	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952
10	9.4713	8.9826	8.5302	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177
11	10.3676	9.7868	9.2526	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052
12	11.2551	10.5753	9.9540	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607
13	12.1337	11.3484	10.6350	9.9856	9.3936	8.8527	8.3577	7.9038	7.4869
14	13.0037	12.1062	11.2961	10.5631	9.8986	9.2950	8.7455	8.2442	7.7862
15	13.8651	12.8493	11.9379	11.1184	10.3797	9.7122	9.1079	8.5595	8.0607
16	14.7179	13.5777	12.5611	11.6523	10.8378	10.1059	9.4466	8.8514	8.3126
17	15.5623	14.2919	13.1661	12.1657	11.2741	10.4773	9.7632	9.1216	8.5436
18	16.3983	14.9920	13.7535	12.6593	11.6896	10.8276	10.0591	9.3719	8.7556
19	17.2260	15.6785	14.3238	13.1339	12.0853	11.1581	10.3356	9.6036	8.9501
20	18.0456	16.3514	14.8775	13.5903	12.4622	11.4699	10.5940	9.8181	9.1285
21	18.8570	17.0112	15.4150	14.0292	12.8212	11.7641	10.8355	10.0168	9.2922
22	19.6604	17.6580	15.9369	14.4511	13.1630	12.0416	11.0612	10.2007	9.4424
23	20.4558	18.2922	16.4436	14.8568	13.4886	12.3034	11.2722	10.3741	9.5802
24	21.2434	18.9139	16.9355	15.2470	13.7986	12.5504	11.4693	10.5288	9.7066
25	22.0232	19.5235	17.4131	15.6221	14.0939	12.7834	11.6536	10.6748	9.8226
30	25.8077	22.3965	19.6004	17.2920	15.3725	13.7648	12.4090	11.2578	10.2737
40	32.8347	27.3555	23.1148	19.7928	17.1591	15.0463	13.3317	11.9246	10.7574
50	39.1961	31.4236	25.7298	21.4822	18.2559	15.7619	13.8007	12.2335	10.9617

Continued on next page

10%	12%	14%	15%	16%	18%	20%	24%	28%	32%	36%
0.9091	0.8929	0.8772	0.8696	0.8621	0.8475	0.8333	0.8065	0.7813	0.7576	0.7353
1.7355	1.6901	1.6467	1.6257	1.6052	1.5656	1.5278	1.4568	1.3916	1.3315	1.2760
2.4869	2.4018	2.3216	2.2832	2.2459	2.1743	2.1065	1.9813	1.8684	1.7663	1.6735
3.1699	3.0373	2.9137	2.8550	2.7982	2.6901	2.5887	2.4043	2.2410	2.0957	1.9658
3.7908	3.6048	3.4331	3.3522	3.2743	3.1272	2.9906	2.7454	2.5320	2.3452	2.1807
4.3553	4.1114	3.8887	3.7845	3.6847	3.4976	3.3255	3.0205	2.7594	2.5342	2.3388
4.8684	4.5638	4.2883	4.1604	4.0386	3.8115	3.6046	3.2423	2.9370	2.6775	2.4550
5.3349	4.9676	4.6389	4.4873	4.3436	4.0776	3.8372	3.4212	3.0758	2.7860	2.5404
5.7590	5.3282	4.9464	4.7716	4.6065	4.3030	4.0310	3.5655	3.1842	2.8681	2.6033
6.1446	5.6502	5.2161	5.0188	4.8332	4.4941	4.1925	3.6819	3.2689	2.9304	2.6495
6.4951	5.9377	5.4527	5.2337	5.0286	4.6560	4.3271	3.7757	3.3351	2.9776	2.6834
6.8137	6.1944	5.6603	5.4206	5.1971	4.7932	4.4392	3.8514	3.3868	3.0133	2.7084
7.1034	6.4235	5.8424	5.5831	5.3423	4.9095	4.5327	3.9124	3.4272	3.0404	2.7268
7.3667	6.6282	6.0021	5.7245	5.4675	5.0081	4.6106	3.9616	3.4587	3.0609	2.7403
7.6061	6.8109	6.1422	5.8474	5.5755	5.0916	4.6755	4.0013	3.4834	3.0764	2.7502
7.8237	6.9740	6.2651	5.9542	5.6685	5.1624	4.7296	4.0333	3.5026	3.0882	2.7575
8.0216	7.1196	6.3729	6.0472	5.7487	5.2223	4.7746	4.0591	3.5177	3.0971	2.7629
8.2014	7.2497	6.4674	6.1280	5.8178	5.2732	4.8122	4.0799	3.5294	3.1039	2.7668
8.3649	7.3658	6.5504	6.1982	5.8775	5.3162	4.8435	4.0967	3.5386	3.1090	2.7697
8.5136	7.4694	6.6231	6.2593	5.9288	5.3527	4.8696	4.1103	3.5458	3.1129	2.7718
8.6487	7.5620	6.6870	6.3125	5.9731	5.3837	4.8913	4.1212	3.5514	3.1158	2.7734
8.7715	7.6446	6.7429	6.3587	6.0113	5.4099	4.9094	4.1300	3.5558	3.1180	2.7746
8.8832	7.7184	6.7921	6.3988	6.0442	5.4321	4.9245	4.1371	3.5592	3.1197	2.7754
8.9847	7.7843	6.8351	6.4338	6.0726	5.4509	4.9371	4.1428	3.5619	3.1210	2.7760
9.0770	7.8431	6.8729	6.4641	6.0971	5.4669	4.9476	4.1474	3.5640	3.1220	2.7765
9.4269	8.0552	7.0027	6.5660	6.1772	5.5168	4.9789	4.1601	3.5693	3.1242	2.7775
9.7791	8.2438	7.1050	6.6418	6.2335	5.5482	4.9966	4.1659	3.5712	3.1250	2.7778
9.9148	8.3045	7.1327	6.6605	6.2463	5.5541	4.9995	4.1666	3.5714	3.1250	2.7778

TABLE A.4 Future value of an annuity of $1 per period for t periods = $[(1 + r)^t - 1]/r$

Number of Periods	Interest Rate								
	1%	2%	3%	4%	5%	6%	7%	8%	9%
1	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
3	3.0301	3.0604	3.0909	3.1216	3.1525	3.1836	3.2149	3.2464	3.2781
4	4.0604	4.1216	4.1836	4.2465	4.3101	4.3746	4.4399	4.5061	4.5731
5	5.1010	5.2040	5.3091	5.4163	5.5256	5.6371	5.7507	5.8666	5.9847
6	6.1520	6.3081	6.4684	6.6330	6.8019	6.9753	7.1533	7.3359	7.5233
7	7.2135	7.4343	7.6625	7.8983	8.1420	8.3938	8.6540	8.9228	9.2004
8	8.2857	8.5830	8.8932	9.2142	9.5491	9.8975	10.260	10.637	11.028
9	9.3685	9.7546	10.159	10.583	11.027	11.491	11.978	12.488	13.021
10	10.462	10.950	11.464	12.006	12.578	13.181	13.816	14.487	15.193
11	11.567	12.169	12.808	13.486	14.207	14.972	15.784	16.645	17.560
12	12.683	13.412	14.192	15.026	15.917	16.870	17.888	18.977	20.141
13	13.809	14.680	15.618	16.627	17.713	18.882	20.141	21.495	22.953
14	14.947	15.974	17.086	18.292	19.599	21.015	22.550	24.215	26.019
15	16.097	17.293	18.599	20.024	21.579	23.276	25.129	27.152	29.361
16	17.258	18.639	20.157	21.825	23.657	25.673	27.888	30.324	33.003
17	18.430	20.012	21.762	23.698	25.840	28.213	30.840	33.750	36.974
18	19.615	21.412	23.414	25.645	28.132	30.906	33.999	37.450	41.301
19	20.811	22.841	25.117	27.671	30.539	33.760	37.379	41.446	46.018
20	22.019	24.297	26.870	29.778	33.066	36.786	40.995	45.762	51.160
21	23.239	25.783	28.676	31.969	35.719	39.993	44.865	50.423	56.765
22	24.472	27.299	30.537	34.248	38.505	43.392	49.006	55.457	62.873
23	25.716	28.845	32.453	36.618	41.430	46.996	53.436	60.893	69.532
24	26.973	30.422	34.426	39.083	44.502	50.816	58.177	66.765	76.790
25	28.243	32.030	36.459	41.646	47.727	54.865	63.249	73.106	84.701
30	34.785	40.568	47.575	56.085	66.439	79.058	94.461	113.28	136.31
40	48.886	60.402	75.401	95.026	120.80	154.76	199.64	259.06	337.88
50	64.463	84.579	112.80	152.67	209.35	290.34	406.53	573.77	815.08
60	81.670	114.05	163.05	237.99	353.58	533.13	813.52	1253.2	1944.8

Continued on next page

10%	12%	14%	15%	16%	18%	20%	24%	28%	32%	36%
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
2.1000	2.1200	2.1400	2.1500	2.1600	2.1800	2.2000	2.2400	2.2800	2.3200	2.3600
3.3100	3.3744	3.4396	3.4725	3.5056	3.5724	3.6400	3.7776	3.9184	4.0624	4.2096
4.6410	4.7793	4.9211	4.9934	5.0665	5.2154	5.3680	5.6842	6.0156	6.3624	6.7251
6.1051	6.3528	6.6101	6.7424	6.8771	7.1542	7.4416	8.0484	8.6999	9.3983	10.146
7.7156	8.1152	8.5355	8.7537	8.9775	9.4420	9.9299	10.980	12.136	13.406	14.799
9.4872	10.089	10.730	11.067	11.414	12.142	12.916	14.615	16.534	18.696	21.126
11.436	12.300	13.233	13.727	14.240	15.327	16.499	19.123	22.163	25.678	29.732
13.579	14.776	16.085	16.786	17.519	19.086	20.799	24.712	29.369	34.895	41.435
15.937	17.549	19.337	20.304	21.321	23.521	25.959	31.643	38.593	47.062	57.352
18.531	20.655	23.045	24.349	25.733	28.755	32.150	40.238	50.398	63.122	78.998
21.384	24.133	27.271	29.002	30.850	34.931	39.581	50.895	65.510	84.320	108.44
24.523	28.029	32.089	34.352	36.786	42.219	48.497	64.110	84.853	112.30	148.47
27.975	32.393	37.581	40.505	43.672	50.818	59.196	80.496	109.61	149.24	202.93
31.772	37.280	43.842	47.580	51.660	60.965	72.035	100.82	141.30	198.00	276.98
35.950	42.753	50.980	55.717	60.925	72.939	87.442	126.01	181.87	262.36	377.69
40.545	48.884	59.118	65.075	71.673	87.068	105.93	157.25	233.79	347.31	514.66
45.599	55.750	68.394	75.836	84.141	103.74	128.12	195.99	300.25	459.45	700.94
51.159	63.440	78.969	88.212	98.603	123.41	154.74	244.03	385.32	607.47	954.28
57.275	72.052	91.025	102.44	115.38	146.63	186.69	303.60	494.21	802.86	1298.8
64.002	81.699	104.77	118.81	134.84	174.02	225.03	377.46	633.59	1060.8	1767.4
71.403	92.503	120.44	137.63	157.41	206.34	271.03	469.06	812.00	1401.2	2404.7
79.543	104.60	138.30	159.28	183.60	244.49	326.24	582.63	1040.4	1850.6	3271.3
88.497	118.16	158.66	184.17	213.98	289.49	392.48	723.46	1332.7	2443.8	4450.0
98.347	133.33	181.87	212.79	249.21	342.60	471.98	898.09	1706.8	3226.8	6053.0
164.49	241.33	356.79	434.75	530.31	790.95	1181.9	2640.9	5873.2	12941.	28172.
442.59	767.09	1342.0	1779.1	2360.8	4163.2	7343.9	22729.	69377.	*	*
1163.9	2400.0	4994.5	7217.7	10436.	21813.	45497.	*	*	*	*
3043.8	7471.6	18535.	29220.	46058.	*	*	*	*	*	*

*The factor is greater than 99,999.

TABLE A.5 Cumulative normal distribution

d	N(*d*)	*d*	N(*d*)	*d*	N(*d*)	*d*	N(*d*)	*d*	N(*d*)	*d*	N(*d*)
−3.00	.0013	−1.58	.0571	−0.76	.2236	0.06	.5239	0.86	.8051	1.66	.9515
−2.95	.0016	−1.56	.0594	−0.74	.2297	0.08	.5319	0.88	.8106	1.68	.9535
−2.90	.0019	−1.54	.0618	−0.72	.2358	0.10	.5398	0.90	.8159	1.70	.9554
−2.85	.0022	−1.52	.0643	−0.70	.2420	0.12	.5478	0.92	.8212	1.72	.9573
−2.80	.0026	−1.50	.0668	−0.68	.2483	0.14	.5557	0.94	.8264	1.74	.9591
−2.75	.0030	−1.48	.0694	−0.66	.2546	0.16	.5636	0.96	.8315	1.76	.9608
−2.70	.0035	−1.46	.0721	−0.64	.2611	0.18	.5714	0.98	.8365	1.78	.9625
−2.65	.0040	−1.44	.0749	−0.62	.2676	0.20	.5793	1.00	.8414	1.80	.9641
−2.60	.0047	−1.42	.0778	−0.60	.2743	0.22	.5871	1.02	.8461	1.82	.9656
−2.55	.0054	−1.40	.0808	−0.58	.2810	0.24	.5948	1.04	.8508	1.84	.9671
−2.50	.0062	−1.38	.0838	−0.56	.2877	0.26	.6026	1.06	.8554	1.86	.9686
−2.45	.0071	−1.36	.0869	−0.54	.2946	0.28	.6103	1.08	.8599	1.88	.9699
−2.40	.0082	−1.34	.0901	−0.52	.3015	0.30	.6179	1.10	.8643	1.90	.9713
−2.35	.0094	−1.32	.0934	−0.50	.3085	0.32	.6255	1.12	.8686	1.92	.9726
−2.30	.0107	−1.30	.0968	−0.48	.3156	0.34	.6331	1.14	.8729	1.94	.9738
−2.25	.0122	−1.28	.1003	−0.46	.3228	0.36	.6406	1.16	.8770	1.96	.9750
−2.20	.0139	−1.26	.1038	−0.44	.3300	0.38	.6480	1.18	.8810	1.98	.9761
−2.15	.0158	−1.24	.1075	−0.42	.3373	0.40	.6554	1.20	.8849	2.00	.9772
−2.10	.0179	−1.22	.1112	−0.40	.3446	0.42	.6628	1.22	.8888	2.05	.9798
−2.05	.0202	−1.20	.1151	−0.38	.3520	0.44	.6700	1.24	.8925	2.10	.9821
−2.00	.0228	−1.18	.1190	−0.36	.3594	0.46	.6773	1.26	.8962	2.15	.9842
−1.98	.0239	−1.16	.1230	−0.34	.3669	0.48	.6844	1.28	.8997	2.20	.9861
−1.96	.0250	−1.14	.1271	−0.32	.3745	0.50	.6915	1.30	.9032	2.25	.9878
−1.94	.0262	−1.12	.1314	−0.30	.3821	0.52	.6985	1.32	.9066	2.30	.9893
−1.92	.0274	−1.10	.1357	−0.28	.3897	0.54	.7054	1.34	.9099	2.35	.9906
−1.90	.0287	−1.08	.1401	−0.26	.3974	0.56	.7123	1.36	.9131	2.40	.9918
−1.88	.0301	−1.06	.1446	−0.24	.4052	0.58	.7191	1.38	.9162	2.45	.9929
−1.86	.0314	−1.04	.1492	−0.22	.4129	0.60	.7258	1.40	.9192	2.50	.9938
−1.84	.0329	−1.02	.1539	−0.20	.4207	0.62	.7324	1.42	.9222	2.55	.9946
−1.82	.0344	−1.00	.1587	−0.18	.4286	0.64	.7389	1.44	.9251	2.60	.9953
−1.80	.0359	−0.98	.1635	−0.16	.4365	0.66	.7454	1.46	.9279	2.65	.9960
−1.78	.0375	−0.96	.1685	−0.14	.4443	0.68	.7518	1.48	.9306	2.70	.9965
−1.76	.0392	−0.94	.1736	−0.12	.4523	0.70	.7580	1.50	.9332	2.75	.9970
−1.74	.0409	−0.92	.1788	−0.10	.4602	0.72	.7642	1.52	.9357	2.80	.9974
−1.72	.0427	−0.90	.1841	−0.08	.4681	0.74	.7704	1.54	.9382	2.85	.9978
−1.70	.0446	−0.88	.1894	−0.06	.4761	0.76	.7764	1.56	.9406	2.90	.9981
−1.68	.0465	−0.86	.1949	−0.04	.4841	0.78	.7823	1.58	.9429	2.95	.9984
−1.66	.0485	−0.84	.2005	−0.02	.4920	0.80	.7882	1.60	.9452	3.00	.9986
−1.64	.0505	−0.82	.2061	0.00	.5000	0.82	.7939	1.62	.9474	3.05	.9989
−1.62	.0526	−0.80	.2119	0.02	.5080	0.84	.7996	1.64	.9495		
−1.60	.0548	−0.78	.2177	0.04	.5160						

This table shows the probability [N(*d*)] of observing a value less than or equal to *d*. For example, as illustrated, if *d* is −.24, then N(*d*) is .4052.

APPENDIX

B

Key Equations

Chapter 2

1 The balance sheet identity or equation:

$$\text{Assets} = \text{Liabilities} + \text{Shareholders' equity} \quad [2.1]$$

2 The income statement equation:

$$\text{Revenues} - \text{Expenses} = \text{Income} \quad [2.2]$$

3 The cash flow identity:

$$\text{Cash flow from assets} = \text{Cash flow to creditors} + \text{Cash flow to stockholders} \quad [2.3]$$

where

a. Cash flow from assets = Operating cash flow (OCF) − Net capital spending − Change in net working capital (NWC)
  (1) Operating cash flow = Earnings before interest and taxes (EBIT) + Depreciation − Taxes
  (2) Net capital spending = Ending net fixed assets − Beginning net fixed assets + Depreciation
  (3) Change in net working capital = Ending NWC − Beginning NWC

b. Cash flow to creditors = Interest paid − Net new borrowing

c. Cash flow to stockholders = Dividends paid − Net new equity raised

Chapter 3

1 The current ratio:

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}} \quad [3.1]$$

2 The quick or acid-test ratio:

$$\text{Quick ratio} = \frac{\text{Current assets} - \text{Inventory}}{\text{Current liabilities}} \quad [3.2]$$

3 The cash ratio:

$$\text{Cash ratio} = \frac{\text{Cash}}{\text{Current liabilities}} \quad [3.3]$$

4 The ratio of net working capital to total assets:

$$\text{Net working capital to total assets} = \frac{\text{Net working capital}}{\text{Total assets}} \quad [3.4]$$

5 The interval measure:

$$\text{Interval measure} = \frac{\text{Current assets}}{\text{Average daily operating costs}} \quad [3.5]$$

6 The total debt ratio:

$$\text{Total debt ratio} = \frac{\text{Total assets} - \text{Total equity}}{\text{Total assets}} \quad [3.6]$$

7 The debt-equity ratio:

$$\text{Debt-equity ratio} = \text{Total debt/Total equity} \quad [3.7]$$

8 The equity multiplier:

$$\text{Equity multiplier} = \text{Total assets/Total equity} \quad [3.8]$$

9 The long-term debt ratio:

$$\text{Long-term debt ratio} = \frac{\text{Long-term debt}}{\text{Long-term debt} + \text{Total equity}} \quad [3.9]$$

10 The times interest earned (TIE) ratio:

$$\text{Times interest earned ratio} = \frac{\text{EBIT}}{\text{Interest}} \quad [3.10]$$

11 The cash coverage ratio:

$$\text{Cash coverage ratio} = \frac{\text{EBIT} + \text{Depreciation}}{\text{Interest}} \quad [3.11]$$

12 The inventory turnover ratio:

$$\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Inventory}} \quad [3.12]$$

13 The average days' sales in inventory:

$$\text{Days' sales in inventory} = \frac{365 \text{ days}}{\text{Inventory turnover}} \quad [3.13]$$

14 The receivables turnover ratio:

$$\text{Receivables turnover} = \frac{\text{Sales}}{\text{Accounts receivable}} \quad [3.14]$$

15 The days' sales in receivables:

$$\text{Days' sales in receivables} = \frac{365 \text{ days}}{\text{Receivables turnover}} \quad [3.15]$$

16 The net working capital (NWC) turnover ratio:

$$\text{NWC turnover} = \frac{\text{Sales}}{\text{NWC}} \quad [3.16]$$

17 The fixed asset turnover ratio:

$$\text{Fixed asset turnover} = \frac{\text{Sales}}{\text{Net fixed assets}} \quad [3.17]$$

18 The total asset turnover ratio:

$$\text{Total asset turnover} = \frac{\text{Sales}}{\text{Total assets}} \quad [3.18]$$

19 Profit margin:

$$\text{Profit margin} = \frac{\text{Net income}}{\text{Sales}} \quad [3.19]$$

20 Return on assets (ROA):

$$\text{Return on assets} = \frac{\text{Net income}}{\text{Total assets}} \quad [3.20]$$

21 Return on equity (ROE):

$$\text{Return on equity} = \frac{\text{Net income}}{\text{Total equity}} \quad [3.21]$$

22 The price-earnings (PE) ratio:

$$\text{PE ratio} = \frac{\text{Price per share}}{\text{Earnings per share}} \quad [3.22]$$

23 The market-to-book ratio:

$$\text{Market-to-book ratio} = \frac{\text{Market value per share}}{\text{Book value per share}} \quad [3.23]$$

24 The Du Pont identity:

$$\text{ROE} = \underbrace{\frac{\text{Net income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}}}_{\text{Return on assets}} \times \frac{\text{Assets}}{\text{Equity}} \quad [3.24]$$

ROE = Profit margin
× Total asset turnover
× Equity multiplier

Chapter 4

1 The dividend payout ratio:

$$\text{Dividend payout ratio} = \text{Cash dividends/Net income} \quad [4.1]$$

2 The internal growth rate:

$$\text{Internal growth rate} = \frac{\text{ROA} \times b}{1 - \text{ROA} \times b} \quad [4.2]$$

3 The sustainable growth rate:

$$\text{Sustainable growth rate} = \frac{\text{ROE} \times b}{1 - \text{ROE} \times b} \quad [4.3]$$

4 The capital intensity ratio:

$$\text{Capital intensity ratio} = \frac{\text{Total assets}}{\text{Sales}} = \frac{1}{\text{Total asset turnover}}$$

Chapter 5

1 The future value of $1 invested for t periods at rate of r per period:

$$\text{Future value} = \$1 \times (1 + r)^t \quad [5.1]$$

2 The present value of $1 to be received t periods in the future at a discount rate of r:

$$\text{PV} = \$1 \times [1/(1 + r)^t] = \$1/(1 + r)^t \quad [5.2]$$

3 The relationship between future value and present value (the basic present value equation):

$$\text{PV} \times (1 + r)^t = \text{FV}_t$$
$$\text{PV} = \text{FV}_t/(1 + r)^t = \text{FV}_t \times [1/(1 + r)^t] \quad [5.3]$$

Chapter 6

1 The present value of an annuity of C dollars per period for t periods when the rate of return or interest rate is r:

$$\text{Annuity present value} = C \times \left(\frac{1 - \text{Present value factor}}{r}\right) = C \times \left\{\frac{1 - [1/(1 + r)^t]}{r}\right\} \quad [6.1]$$

2 The future value factor for an annuity:

$$\text{Annuity FV factor} = (\text{Future value factor} - 1)/r = [(1 + r)^t - 1]/r \quad [6.2]$$

3 Annuity due value = Ordinary annuity value × $(1 + r)$ [6.3]

4 Present value for a perpetuity:

$$\text{PV for a perpetuity} = C/r = C \times (1/r) \quad [6.4]$$

5 Effective annual rate (EAR), where m is the number of times the interest is compounded during the year:

$$\text{EAR} = [1 + (\text{Quoted rate}/m)]^m - 1 \quad [6.5]$$

6 Effective annual rate (EAR), where q stands for the continuously compounded quoted rate:

$$\text{EAR} = e^q - 1 \quad [6.6]$$

Chapter 7

1 Bond value if bond has (1) a face value of F paid at maturity, (2) a coupon of C paid per period, (3) t periods to maturity, and (4) a yield of r per period:

Bond value
$= C \times [1 - 1/(1 + r)^t]/r + F/(1 + r)^t$ [7.1]

Bond value
= Present value of the coupons + Present value of the face amount

2 The Fisher effect:

$1 + R = (1 + r) \times (1 + h)$ [7.2]

$R = r + h + r \times h$ [7.3]

$R \approx r + h$ [7.4]

Chapter 8

1 The dividend growth model:

$$P_0 = \frac{D_0 \times (1 + g)}{R - g} = \frac{D_1}{R - g}$$ [8.3]

2 Required return:

$R = D_1/P_0 + g$ [8.5]

Chapter 9

1 Net present value (NPV):

NPV = Present value of future cash flows − Investment cost

2 Payback period:

Payback period = Number of years that pass before the sum of an investment's cash flows equals the cost of the investment

3 Discounted payback period:

Discounted payback period = Number of years that pass before the sum of an investment's *discounted* cash flows equals the cost of the investment

4 The average accounting return (AAR):

$$\text{AAR} = \frac{\text{Average net income}}{\text{Average book value}}$$

5 Internal rate of return (IRR):

IRR = Discount rate of required return such that the net present value of an investment is zero

6 Profitability index:

$$\text{Profitability index} = \frac{\text{PV of cash flows}}{\text{Cost of investment}}$$

Chapter 10

1 Bottom-up approach to operating cash flow (OCF):

OCF = Net income + Depreciation [10.1]

2 Top-down approach to operating cash flow (OCF):

OCF = Sales − Costs − Taxes [10.2]

3 Tax shield approach to operating cash flow (OCF):

OCF = (Sales − Costs) × (1 − T) + Depreciation × T [10.3]

Chapter 11

1 Accounting break-even level:

$Q = (\text{FC} + D)/(P - v)$ [11.1]

2 Relationship between operating cash flow (OCF) and sales volume:

$Q = (\text{FC} + \text{OCF})/(P - v)$ [11.3]

3 Cash break-even level:

$Q = \text{FC}/(P - v)$

4 Financial break-even level:

$Q = (\text{FC} + \text{OCF}^*)/(P - v)$

where

OCF^* = Zero NPV cash flow

5 Degree of operating leverage (DOL):

DOL = 1 + FC/OCF [11.4]

Chapter 12

1 Variance of returns, Var(R) or σ^2:

$$\text{Var}(R) = \frac{1}{T - 1}[(R_1 - \bar{R})^2 + \ldots + (R_T - \bar{R})^2]$$ [12.3]

2 Standard deviation of returns, SD(R) or σ:

$\text{SD}(R) = \sqrt{\text{Var}(R)}$

Chapter 13

1 Risk premium:

Risk premium = Expected return − Risk-free rate [13.1]

2 Expected return on a portfolio:

$\text{E}(R_P) = x_1 \times \text{E}(R_1) + x_2 \times \text{E}(R_2) + \ldots + x_n \times \text{E}(R_n)$ [13.2]

3 The reward-to-risk ratio:

$$\text{Reward-to-risk ratio} = \frac{\text{E}[R_i] - R_f}{\beta_i}$$

4 The capital asset pricing model (CAPM):

$\text{E}(R_i) = R_f + [\text{E}(R_M) - R_f] \times \beta_i$ [13.7]

Chapter 14

1 Value of a call option at maturity:

a. $C_1 = 0$ if $(S_1 - E) \leq 0$ [14.1]

b. $C_1 = S_1 - E$ if $(S_1 - E) > 0$ [14.2]

2 Bounds on the value of a call option:

a. Upper bound:

$C_0 \leq S_0$ [14.3]

b. Lower bound:

$C_0 \geq 0$ if $S_0 - E < 0$

$C_0 \geq S_0 - E$ if $S_0 - E \geq 0$ [14.4]

3 $S_0 = C_0 + E/(1 + R_f)$
$C_0 = S_0 - E/(1 + R_f)$ [14.5]

4 Value of a call that is certain to finish in-the-money:

Call option value
= Stock value
− Present value of the exercise price

$C_0 = S_0 - E/(1 + R_f)^t$ [14.6]

Chapter 15

1 Required return on equity, R_E (dividend growth model):

$R_E = D_1/P_0 + g$ [15.1]

2 Required return on equity, R_E (CAPM):

$R_E = R_f + \beta_E \times (R_M - R_f)$ [15.2]

3 Required return on preferred stock, R_P:

$R_P = D/P_0$ [15.3]

4 The weighted average cost of capital (WACC):

$\text{WACC} = (E/V) \times R_E + (D/V) \times R_D \times (1 - T_C)$ [15.6]

5 Weighted average flotation cost, f_A:

$$f_A = \frac{E}{V} \times f_E + \frac{D}{V} \times f_D \quad [15.8]$$

Chapter 16

1 Rights offerings:

a. Number of new shares:

$$\text{Number of new shares} = \frac{\text{Funds to be raised}}{\text{Subscription price}} \quad [16.1]$$

b. Number of rights needed:

$$\text{Number of rights needed to buy a share of stock} = \frac{\text{Old shares}}{\text{New shares}} \quad [16.2]$$

c. Value of a right:

Value of a right = Rights-on price − Ex-rights price

Chapter 17

1 Modigliani-Miller Propositions (no taxes):

a. Proposition I:

$V_L = V_U$

b. Proposition II:

$R_E = R_A + (R_A - R_D) \times (D/E)$ [17.1]

2 Modigliani-Miller propositions (with taxes):

a. Value of the interest tax shield:

$\text{Value of the interest tax shield} = (T_C \times R_D \times D)/R_D = T_C \times D$ [17.2]

b. Proposition I:

$V_L = V_U + T_C \times D$ [17.3]

c. Proposition II:

$R_E = R_U + (R_U - R_D) \times (D/E) \times (1 - T_C)$ [17.4]

Chapter 19

1 The operating cycle:

Operating cycle = Inventory period + Accounts receivable period [19.4]

2 The cash cycle:

Cash cycle = Operating cycle − Accounts payable period [19.5]

Chapter 20

1 Float measurement:

a. Average daily float:

$$\text{Average daily float} = \frac{\text{Total float}}{\text{Total days}} \quad [20.1]$$

b. Average daily float:

Average daily float = Average daily receipts × Weighted average delay [20.2]

2 The Baumol-Allais-Tobin (BAT) model:

a. Opportunity costs:

$\text{Opportunity costs} = (C/2) \times R$ [20A.1]

b. Trading costs:

$\text{Trading costs} = (T/C) \times F$ [20A.2]

c. Total cost:

Total cost = Opportunity costs + Trading costs [20A.3]

d. The optimal initial cash balance:

$C^* = \sqrt{(2T \times F)/R}$ [20A.4]

3 The Miller-Orr model:

a. The optimal cash balance:

$C^* = L + (3/4 \times F \times \sigma^2/R)^{1/3}$ [20A.5]

b. The upper limit:

$U^* = 3 \times C^* - 2 \times L$ [20A.6]

Chapter 21

1 The size of receivables:

Accounts receivable = Average daily sales × ACP [21.1]

2 NPV of switching credit terms:

a. Present value of switching:

$\text{PV} = [(P - v)(Q' - Q)]/R$ [21.4]

b. Cost of switching:

$\text{Cost of switching} = PQ + v(Q' - Q)$ [21.5]

c. NPV of switching:

$\text{NPV of switching} = -[PQ + v(Q' - Q)] + (P - v) \times (Q' - Q)/R$ [21.6]

3 NPV of granting credit:

a. With no repeat business:

$\text{NPV} = -v + (1 - \pi)P/(1 + R)$ [21.8]

b. With repeat business:

$$NPV = -v + (1 - \pi)(P - v)/R \quad [21.9]$$

4 The economic order quantity (EOQ) model:

a. Total carrying costs:

$$\begin{aligned}&\text{Total carrying costs}\\&= \text{Average inventory}\\&\quad \times \text{Carrying costs per unit}\\&= (Q/2) \times CC\end{aligned} \quad [21.10]$$

b. Total restocking costs:

$$\begin{aligned}&\text{Total restocking costs}\\&= \text{Fixed cost per order}\\&\quad \times \text{Number of orders} = F \times (T/Q)\end{aligned} \quad [21.11]$$

c. Total costs:

$$\begin{aligned}\text{Total costs} &= \text{Carrying costs}\\&\quad + \text{Restocking costs}\\&= (Q/2) \times CC\\&\quad + F \times (T/Q)\end{aligned} \quad [21.12]$$

d. The optimal order size Q^*:

$$Q^* = \sqrt{\frac{2T \times F}{CC}} \quad [21.16]$$

Chapter 22

1 Purchasing power parity (PPP):

$$E(S_t) = S_0 \times [1 + (h_{FC} - h_{US})]^t \quad [22.3]$$

2 Interest rate parity (IRP):

a. Exact, single period:

$$F_1/S_0 = (1 + R_{FC})/(1 + R_{US}) \quad [22.4]$$

b. Approximate, multiperiod:

$$F_t = S_0 \times [1 + (R_{FC} - R_{US})]^t \quad [22.7]$$

3 Uncovered interest parity (UIP):

$$E(S_t) = S_0 \times [1 + (R_{FC} - R_{US})]^t \quad [22.9]$$

4 International Fisher effect (IFE):

$$R_{US} - h_{US} = R_{FC} - h_{FC} \quad [22.10]$$

Chapter 24

1 Put-call parity condition:

$$S + P = PV(E) + C \quad [24.2]$$

2 The Black-Scholes call option formula:

$$C = S \times N(d_1) - E \times e^{-Rt} \times N(d_2) \quad [24.5]$$

where

$$\begin{aligned}d_1 &= [1n(S/E) + (R + \sigma^2/2) \times t]/(\sigma \times \sqrt{t})\\d_2 &= d_1 - \sigma \times \sqrt{t}\end{aligned} \quad [24.6]$$

3 Value of a risk-free bond:

$$\text{Value of risky bond} + \text{put option} \quad [24.7]$$

Chapter 25

1 The NPV of a merger:

$$\begin{aligned}NPV = V_B^* &- \text{Cost to Firm A of}\\&\text{the acquisition}\end{aligned} \quad [25.1]$$

APPENDIX C

Answers to Selected End-of-Chapter Problems

Chapter 2

2.2 Net income = $122,850

2.4 EPS = $4.10
DPS = $2.17

2.6 Taxes = $55,400

2.8 OCF = $3,040.50

2.10 Change in NWC = $435

2.12 Cash flow to stockholders = −$175,000

2.14 **a.** OCF = $36,170
b. Cash flow to creditors = $20,000
c. Cash flow to stockholders = $3,570
d. Change in NWC = $1,600

2.16 Common stock = $855,000

2.18 **a.** $\text{Tax}_{\text{growth}}$ = $15,450
$\text{Tax}_{\text{income}}$ = $3,060,000
b. $3,400

2.20 Net new long-term debt = −$20,000

2.22 **a.** Owners' equity:
2001 = $1,780
2002 = $1,852
b. Change in NWC = −$28
c. Fixed assets sold = $500
Cash flow from assets = $2,064.20
d. Debt retired = $100
Cash flow to creditors = $12

2.24 **b.** Average tax rate = 34%
Average tax rate = 35%
c. Bubble rate = 45.75%

2.26 Cash flow from assets = $215.14
Cash flow to creditors = −$619.00
Cash flow to stockholders = $834.14

Chapter 3

3.2 Net income = $2.24 million
ROA = 5.21%
ROE = 6.59%

3.4 Inventory turnover = 5.59 times
Days' sales in inventory = 65.35 days
Average inventory period = 65.35 days

3.6 EPS = $3.40
DPS = $1.20
BVPS = $48.00
Market-to-book ratio = 1.98 times
PE ratio = 27.9 times

3.8 Debt-equity ratio = .75 times

3.10 74.18 days

3.12 Equity multiplier = 2.10 times
ROE = 17.64%
Net income = $77,616

3.18 Net income = $91.80

3.20 Net fixed assets = $5,400.91

3.22 Profit margin = 5.20%
Total asset turnover = 2.34 times
ROE = 27.97%

3.24 TIE ratio = 2.23 times

3.26 **a.** 4.33 times; 3.61 times
b. 1.77 times; 1.30 times
c. .38 times; .33 times
d. 1.06 times
e. 2.33 times
f. 13.30 times
g. .28; .24
h. .39; .32
i. 1.39; 1.32
j. 14.55 times
k. 16.73 times
l. 30.83%
m. 32.72%
n. 43.10%

Chapter 4

4.2 EFN = −$1,770

4.4 EFN = $22,046
4.6 Internal growth rate = 4.03%
4.8 Maximum increase in sales = $6,163
4.12 Internal growth rate = 9.89%
4.14 Sustainable growth rate = 9.89%
ROE = 23.00%
4.16 Maximum sales growth = 33.33%
4.18 Profit margin = 20.43%
4.20 TAT = 1.15 times
4.22 Sustainable growth rate = 46.79%
New borrowing = $30,413
Internal growth rate = 11.75%
4.24 EFN = −$79,646
4.26 EFN @ 20.00% = $12,754
EFN @ 25.00% = $32,732
EFN @ 30.00% = $52,710
EFN @ 16.81% = $0
4.28 Maximum sustainable growth rate = 3.73%

Chapter 5

5.2 $67,410
$36,964
$128,670
$258,619
5.4 5.03%
8.67%
8.72%
5.85%
5.6 11.77%
5.8 8.36%
5.10 $127.15 million
5.12 $4,547.83
5.14 $7.00
5.16 **a.** 10.50%
b. 11.97%
c. 7.62%
5.18 $96,654.57
$40,827.94
5.20 23.93 years

Chapter 6

6.2 @ 5%: PV_x = $19,389.64
PV_y = $17,729.75
@ 22%: PV_x = $10,857.80
PV_y = $12,468.20
6.4 15 years: PV = $31,184.93
40 years: PV = $40,094.11
75 years: PV =$40,967.76
Forever: PV =$41,000.00
6.6 PV = $439,297.77
6.8 *C* = $8,834.47
6.10 PV = $55,555.56
6.12 12.55%; 8.30%; 7.25%; 17.35%
6.14 1st National: EAR = 9.49%
1st United: EAR = 9.41%
6.16 $5,107.99
6.18 $9,249.39
6.20 *C* = $1,020.43
EAR = 10.25%
6.22 APR = 1,733.33%
EAR = 313,916,515.70%
6.24 FV = $86,563.80
6.26 PV = $15,024.31
6.28 PV = $7,121.66
6.30 6.77% semiannual
3.33% quarterly
1.10% monthly
6.36 PV_1 = $129,346.65
PV_2 = $124,854.21
6.38 G: 10.63%
H: 10.50%
6.40 114 payments
6.42 Balloon payment = $348,430.68
6.44 PV = $26,092,064.36
6.46 Profit = $7,122.29
Break-even = 18.56%
6.48 PV = $3,356,644.06
6.50 PV = $96,162.01
6.52 Value = $5,614.47
6.54 PV_5 = $183,255.87
PV_{10} = $281,961.41
6.56 PV = $2,038.79; $2,252.86
6.58 Third year: $1,599.10
Life of loan: $7,740.97
6.60 EAR = 12.36%
6.62 EAR = 15.46%
6.64 Refundable fee:
EAR = 8.92%
APR = 8.57%
Nonrefundable fee:
EAR = 8.84%
APR = 8.50%

6.66 **a.** $4,730.88
b. $48,603.46
c. $2,709.85

6.70 14.52%

6.72 PV = $12,165.86

6.74 C = $19,184.10

Chapter 7

7.4 8.76%

7.6 $1,076.43

7.8 7.13%

7.10 6.61%

7.12 8.65%

7.18 Current yield = 9.62%
YTM = 9.21%
Effective yield = 9.42%

7.24 **a.** 10,000 coupon bonds; 132,679 zeroes
b. $10.9 million; $132.679 million

7.26 P: Current yield = 8.97%
Capital gains yield = −.97%
D: Current yield = 6.78%
Capital gains yield = 1.22%

7.28 P_M = $9,837.00
P_N = $1,944.44

Chapter 8

8.2 10.21%

8.4 $44.44

8.6 $3.93

8.8 6.85%

8.10 $26.91

8.12 $22.89

8.14 $2.98

8.16 $1.67

8.18 Close = $35.97
Net income = $1.44 million

8.20 **a.** $45.00
b. $47.30

8.22 10.25%

Chapter 9

9.4 **a.** 1.29 years
b. 2.14 years
c. 3.01 years

9.6 AAR = 20.81%

9.8 @ 11%: NPV = $4,658.40
@ 21%: NPV = −$247.76

9.10 IRR = 25.43%

9.12 **a.** IRR_A = 15.86%
IRR_B = 14.69%
b. NPV_A = $1,520.71
NPV_B = $1,698.58
c. Crossover rate = 12.18%

9.14 **a.** @ 10%: NPV = $13,570,247.93
b. IRR = +72.75%,
−83.46%

9.16 **a.** PI_I = 1.266
PI_{II} = 2.109
b. NPV_I = $5,312.95
NPV_{II} = $3,328.24

9.18 @ 0%: NPV = $128,252
@ ∞%: NPV = −$412,670
@ 14.57%: NPV = 0

9.20 **a.** $C = I/N$
b. $C > I/\text{PVIFA}_{R\%,N}$
c. $C = 2.0*I/\text{PVIFA}_{R\%,N}$

9.22 IRR = 25%, 33.33%, 42.86%, 66.67%

Chapter 10

10.2 Annual sales = $339 million

10.4 OCF = $277,561
Tax shield = $38,080

10.8 Salvage value = $1,548,032

10.10 OCF = $927,500

10.12 CF_0 = −$2,375,000
CF_1 = $927,500
CF_2 = $927,500
CF_3 = $1,413,750
NPV = $62,408.56

10.14 NPV = $6,408.24

10.16 NPV = $85,839.44
NPV = −$108,550.35
Break-even cost savings = $255,841.59

10.18 EAC_I = −$78,263.13
EAC_{II} = −$75,661.96

10.20 NPV = −$26,574.44

10.22 EAC_A = −$215,663.74
EAC_B = −$159,470.87

10.26 Annual cost savings = $163,515.59

Chapter 11

11.2 Total costs = $6,811,600
Marginal cost = $42.94
Average cost = $48.65
Minimum revenue = $429,400

11.6 Best-case NPV = $4,649,729
Worst-case NPV = −$92,984

11.8 $D = \$828{,}200$
$P = \$80.36$
VC = \$55.35

11.10 $Q_F = 21{,}596$

11.12 OCF = \$112,500
DOL = 2.33

11.14 FC = \$22,500
$OCF_{9,000} = \$5{,}850$
$OCF_{11,000} = \$12{,}150$

11.18 DOL = 1.3654
$DOL_A = 2.3214$

11.20 Payback = 2.996 yrs
NPV = \$7,388,052
IRR = 27.59%

11.22 $\Delta NPV/\Delta P = \$128{,}649$
$\Delta NPV/\Delta Q = \$926.27$

11.26 $\Delta OCF/\Delta Q = +\$18.60$
$\Delta NPV/\Delta Q = +\$65.42$
$Q_{min} = 27{,}373$

11.28 DOL = 1.12435
$\Delta OCF = +3.212\%$

Chapter 12

12.2 $R_d = +2.42\%$; $R_c = -17.74\%$

12.4 **a.** \$120
b. 11.11%
c. 6.84%

12.6 2.42%; 2.71%

12.10 **a.** 7.83%
b. 7.40%

12.14 1/6;
−13.1% to +24.5%;
−22.5% to +33.9%

12.18 **a.** .3227; .2483
b. .0287; .1112
c. .1190; .0228

Chapter 13

13.2 $E(R_P) = 16.42\%$

13.4 X: \$7,000
Y: \$3,000

13.6 $E(R_I) = 6.50\%$

13.8 $E(R_P) = 15.70\%$

13.10 **a.** $E(R_P) = 8.41\%$
b. $\sigma_P^2 = .03029$
$\sigma_P = 17.41\%$

13.12 $\beta_i = 2.2$

13.14 $\beta_i = 1.14$

13.16 $R_f = 6.0\%$

13.18 Slope = .0929

13.20 $R_f = 4.92\%$

13.24 $C = \$365{,}625$
$R = \$184{,}375$

13.26 $\beta_I = 2.82$
$\sigma_I = 13.15\%$
$\beta_{II} = 0.60$
$\sigma_{II} = 23.53\%$

Chapter 14

14.4 **a.** \$12.50
b. \$1.92

14.6 \$94.10

14.8 **a.** $D_0 = \$912.82$
b. $E_0 = \$419.55$

14.10 Straight-bond value = \$907.99
Conversion value = \$1,100.00

14.12 Warrant price = \$2.27

14.14 **a.** $NPV_{base} = \$134{,}958.72$
b. $Q < 4{,}175$

14.16 **a.** \$1,190,002
b. \$1,032,501.21

14.20 \$814.63

Chapter 15

15.2 13.05%

15.4 20.66%

15.6 Pretax cost = 9.03%
Aftertax cost = 5.87%

15.8 Book value = \$90 million
Market value = \$63.7 million
Aftertax cost = 5.01%

15.10 13.07%

15.12 **a.** $E/V = 0.2547$
$D/V = 0.7453$
b. $E/V = 0.7785$
$D/V = 0.2215$

15.14 **a.** 11.45%
b. 17.95%

15.16 **a.** $D/V = 0.2392$
$P/V = 0.0880$
$E/V = 0.6728$
b. 13.47%

15.18 **b.** 9.50%
c. \$6.629 million

15.20 Break-even cost = \$45,901,639

15.22 \$3,565,917

Chapter 16

16.2 **a.** $60; anything > 0
b. 1.20 million; 4
c. $58.00; $2.00

16.4 $4,000; −$500

16.6 786,102

16.8 No change;
Declines by $1.67;
Declines by $4.17

16.12 $37.50

16.14 $7,500

Chapter 17

17.2 **a.** EPS = $.62, $1.56, $2.03
b. EPS = $.17, $1.73, $2.51

17.4 **a.** I: EPS = $2.00
II: EPS = $1.00
b. I: EPS = $7.00
II: EPS = $11.00
c. $300,000

17.6 **a.** EPS = $8.88, $9.50, $8.00
b. EBIT = $4,500
c. EBIT = $4,500
d. EBIT = $4,500

17.8 **a.** $700
b. $840

17.10 $5.6 million

17.12 **a.** 18.70%
b. 14.35%
c. 16.78%, 14.85%, 11.00%

17.14 $208,000, $225,500

17.16 V = $140,833.33

Chapter 18

18.2 **a.** New shares issued = 1,000
b. New shares issued = 2,500

18.4 **a.** $42.00
b. $60.87
c. $49.12
d. $122.50
e. 166,667; 115,000; 142,500; 57,143

18.6 Shares outstanding = 3,920
Price = $37.50

18.8 Shares outstanding = 378,000
Capital surplus = $2,182,000

18.10 New borrowings = $384
Capital outlays = $864

18.12 **a.** $560,000
b. No dividend paid

18.14 P_0 = $23.21
D = $14.27

18.18 **a.** D
b. .72D
c. .903D
d. Price drop = 1.377D

Chapter 19

19.2 Cash = $5,850
CA = $9,100

19.4 **a.** *I, I*
b. *I, N*
c. *D, D*
d. *D, D*
e. *D, N*
f. *I, I*

19.6 Operating cycle = 86.136 days
Cash cycle = 36.784 days

19.8 **a.** $157.50; $195; $150; $155.25
b. $135; $157.50; $195; $150
c. $142.50; $170; $180; $151.75

19.10 **a.** $226,666.67
b. $74,285.71
c. $139,857.29
$144,442.86
$170,400.00

19.12 **a.** 6.697%
b. $329,254.41

19.16 **a.** 7.786%
b. 7.798%

Chapter 20

20.2 **a.** $120,000
−$100,000
$20,000
b. −$50,000
$70,000

20.4 **a.** $104,000
b. $3,466.67
c. $800
4.3 days

20.6 **a.** $24,000
b. 2.48 days
c. $24,000
d. $5.06
e. $14,500

20.8 **a.** $280,000
b. $73.12 per day
c. $2,232.76 per month

20.10 NPV = $5.9 million
Net savings = $236,000

20.12 114 customers per day

Appendix 20A

20A.2 $1,224.74

20A.4 **a.** Opportunity cost = $9.00
Trading cost = $333.33
b. $1,825.74

20A.10 16.00%

Chapter 21

21.2 $17,260,274

21.4 $100,000

21.6 Sales = $239,344
Accounts receivable turnover = 5.984

21.8 $542,465.75

21.10 NPV = $1,927,000

21.12 Carrying cost = $3,825
Order cost = $2,496
EOQ = 137.33
Orders = 64.37 per year

21.14 NPV = $647,333.33

21.16 2,925

21.18 $323.93

Appendix 21A

21A.2 **a.** 3/15, net 45
b. $210,000
d. NPV = −$1,725,000
Break-even price = $117.83
Break-even discount = 10.89%

21A.4 **b.** $49.83
c. NPV = −$592,877.72

Chapter 22

22.2 **c.** 10.65996 FF/£
.0938 £/FF

22.6 France: 3.82%
Japan: 1.77%
Switzerland: 3.24%

22.8 United States inflation 2.52% lower

22.10 **b.** DM 1.5731

22.12 **b.** −6.30%

Chapter 23

23.2 Loss = $6,212.50
Profit = $3,787.50

Chapter 24

24.2 $7,408.18

24.4 $5.21

24.6 1.85%

24.8 Call = $4.63
Put = $2.26

24.10 Call delta = 0.67
Put delta = −0.33

24.12 You pay $253,110.14

24.14 $3.23

24.16 $6.81

24.18 Equity = $2,549.18
Debt = $8,450.82

24.20 Equity = $4,583.30
Debt = $15,416.70
Cost of debt = 26.03%

24.22 **a.** $13,415,249.81
b. $8,584,750.19
c. 10.69%
d. $13,839,268.65
e. 10.60%

24.24 **a.** $37,040.91
b. $9,770.28
c. $27,270.63; 12.12%
d. $24,067.25; 14.62%
e. Bondholders lose $3,203.38
Stockholders gain $3,203.38

24.26 $11.14

24.30 1

Chapter 25

25.8 EPS = $4.875
PE = 16.15 times

25.10 Ratio = .7670

Chapter 26

26.2 NAL = −$5,810.78

26.4 $12,723.90

26.6 −$10,838.83

26.8 $1,202,431.92

NAME INDEX

A

Altman, Edward I., 221

B

Bailey, Herbert S., Jr., 39
Beckman, Theodore N., 709n
Belzberg family, 859
Black, Fischer, 621
Block, S. R., 299
Bonds, Barry, 144
Bowie, David, 201
Buffet, Warren, 629

C

Cottle, Sidney, 614

D

Descartes, René, 293
Dodd, David, 614

E

Eisner, Michael, 15, 849
Esrey, William, 863

F

Fisher, Irving, 229
Fomon, Robert, 681
Ford, Henry, 382
Franklin, Benjamin, 145

G

Gordon, Myron, 615
Graham, Benjamin, 614
Graham, J. R., 299

H

Hansen, Robert S., 554n
Harvey, C. R., 299
Higgins, Robert C., 115
Hill, N. C., 644n, 654n, 655

I

Ibbotson, Roger, 386, 388, 389, 390–392, 395, 397, 401, 534–538

J

Jaffe, J. F., 873n
Jaffe, J. J., 498n
Jensen, Michael C., 842
Jobs, Steven, 3, 15, 453
Johnson, James, 873n

K

Keynes, John Maynard, 673

M

McGuire, Mark, 144
McMahon, Vince, 349
Malkiel, B. G., 405n
Mantle, Mickey, 144
Merton, Robert C., 470
Miller, Merton H., 575–584, 703n
Minuit, Peter, 134
Modigliani, Franco, 575–584
Moore, J. S., 299
Myers, S. C., 856n

O

O'Neal, Shaquille, 314
Orr, D., 703n

P

Piazza, Mike, 157
Pickens, T. Boone, 860
Porter, Michael, 851n

R

Reichert, A. K., 299
Rittner, Jay R., 525n, 534–540
Rodriguez, Alex "A-Rod," 157
Roll, Richard, 406
Ross, S. A., 498n, 873n

S

Santayana, George, 382
Sartoris, W. L., 644n, 654n, 655
Sindelar, Jody L., 534–538
Sinquefield, Rex, 386, 388, 390–392, 395, 397, 401
Smith, Clifford W., Jr., 13
Smithson, Charles W., 778–782
Stanley, M. T., 299

T

Truman, Harry S, 606
Turner, Ted, 788
Twain, Mark, 98, 382

W

Weaver, Samuel, 320, 515
Weill, Sanford, 15
Westerfield, R. W., 498n, 873n
Woolard, Edgar, 3

EQUATION INDEX

A

acid-test ratio, 64–65
annuity due, 174
asset management, 67–69
assets, 24
asset turnover, 69
average accounting return, 286
average daily float, 677–678

B

balance sheet identity, 24
Baumol-Allais-Tobin model, 701
bond value, 205
break-even
  accounting, 365
  cash, 366
  financial, 366
  generally, 365

C

call option pricing, 813
capital asset pricing model, 439–440
capital gains yield, 251
capital intensity ratio, 104
cash, 640
cash coverage ratio, 67
cash cycle, 643
cash flow from assets, 35
cash flow identity, 35
cash flow to creditors, 37
cash flow to stockholders, 38
cash ratio, 65
cost of equity, 495, 497
current ratio, 63

D

days' sales in inventory, 68
days' sales in receivables, 69
debt-equity ratio, 66
degree of operating leverage, 368–369
discounted cash flow valuation, 139–140
discount rate, 139
dividend growth model, 495
dividend payout ratio, 103
dividends per share, 29
dividend yield, 251
Du Pont identity, 74

E

earnings per share, 29, 71
economic order quantity, 730
effective annual rate, 177
equity multiplier, 66
expected return, 416–417

F

Fisher effect, 229–230
fixed asset turnover, 69
float, 675–676
future value, 131
  annuity, 172
  relationship between present value and, 142

I

implied standard deviation, 824–825
income statement equation, 28
incremental cash flow, 850
interest rate parity, 761–762
internal growth rate, 112
internal rate of return, 288–289
international Fisher effect, 763
interval measure, 65
inventory period, 646
inventory turnover, 67

L

long-term debt ratio, 66
long-term solvency, 65–67

M

market-to-book ratio, 72
market value, 71–73
Miller-Orr model, 703
M&M Propositions I & II, 576, 580–584

N

net present value, 276
net working capital, 25
net working capital to total assets, 65
net working capital turnover, 69

O

operating cash flow, 36, 317, 331
operating cycle, 642

P

payables period, 646–647
payables turnover, 646
payback period, 279–280
  discounted, 285
plowback ratio, 103
present value, 138
  annuity, 166–167
  basic, 142
  dividends per share, 610
  perpetuity, 174
  relationship between future value and, 142
price-earnings ratio, 71

profitability, 70–71
profit margin, 70
project cash flow, 317
project net income, 361–362
purchasing power parity, 757
put-call parity, 809–810
put option valuation, 816–817

Q

quick ratio, 64–65

R

receivables period, 646
receivables turnover, 68
required return, 251–252
retention ratio, 103
return on assets, 70, 71
return on equity, 70, 71
reward-to-risk ratio, 435
rights offering, 548

S

security market line, 497
shareholders' equity, 26–27
short-term solvency, 63–65
standard deviation of return, 398
stock valuation
  constant growth, 246–248
  nonconstant growth, 249–251
  required return, 251–252
  zero growth, 246
sustainable growth ratio, 112

T

times interest earned ratio, 67
total asset turnover, 69
total costs, 358
total debt ratio, 65–66
trading costs, 700

U

unbiased forward rates, 762
uncovered interest parity, 763

V

value of a call option, 459
variable costs, 357
variance of return, 398

W

weighted average cost of capital, 502
weighted average floatation cost, 514

SUBJECT INDEX

Note: Key terms are in **bold face.**

A

ABC approach to inventory management, 726
ABN-Amro, 207
Absolute priority rule (APR), 596
Absolute purchasing power parity, 757–758
Accelerated cost recovery system (ACRS), 322
  modified, 322–323, 324
Accounting and leasing, 876–878
Accounting break-even, 360–362, 365
  cash flow and, 363–364
    base case, 363
    calculating level, 363–364
    payback and, 364
  uses for, 362
Accounting insolvency, 595
Accounts payable period, 643
Accounts receivable, 708–709. *See also* Credit
  approach to credit analysis, 739–740
Accounts receivable financing, 660–661
Accounts receivable period, 642
Acid-test ratio, 64–65
Acquisitions. *See also* Mergers and acquisitions
  of assets, 844
  classification of, 844–845
  of stock, 843–844
Adjustment costs, 697
Aftermarket, 533
Agency costs, 14
Agency problem, 12–16, **14**
  acting in the stockholders' interests and, 14–15
  control of the firm and, 15
  management goals, 14
  managerial compensation and, 15
  market incentives for ethical behavior, 13
  stakeholders and, 16
Agency relationship, 14
Aggregation, 97
Aging schedule, 723
Agreement of merger, 853
Alabama Power Co., 500
Amazon.com, 97, 432, 478, 644
American Depository Receipt (ADR), 750
American Electric Power (AEP), 386, 807
American exchange rate quote, 753–754
American option, 454, 796
American Stock Exchange (AMEX), 19
America Online (AOL), 432, 455–456, 844
AmeriServe Food Distribution, Inc., 218
Amgen, 626
Anadarko Petroleum, 807
Anheuser-Busch, 81
Announcements and news, 424–425
Annual percentage rate (APR), 179
Annuities, 166–176
  calculator hints for, 168, 169, 170, 172, 173
  due, 173–174
  future value of, 172–173
  perpetuities, 174–175
  present value of, 166–172, 202–205
    payments, 168–170
    rate, 170–172
    tables, 167
  spreadsheets for, 168, 169
  summary of calculations, 176
Annuity due, 173–174
AOL-Time Warner, 53
Apple Computer, 3, 9, 15, 453
Appropriate discount rate, 494
Arbitrages, 460
  covered interest, 760–671
  triangle, 755
Articles of incorporation, 8
Ashland Oil, 859–860
Asked price, 226
Aspirant group, 77
Asset management ratios, 67–70
Assets
  on the balance sheet, 23–24
  cash flow from, 35–37
  current, 23, 24, 640
  equity as a call option of the firm's, 468–471
  financial planning models and, 100
Asset-specific risks, 426, 430
Asset utilization ratios, 67–70
AT&T, 9, 224, 429, 509, 551, 629, 863
Auction markets, 18–19
Automated clearinghouse (ACH), 684
Automatic Data, 807
Automatic dividend reinvestment plans (ADRs), 611
Availability delay, 677, 678–679
  accelerating collections and, 684–687
Available balance, 675
Average accounting return (AAR), 285–287, 300
  advantages and disadvantages of, 287
  rule, 286
Average collection period (ACP), 69, 709
  cash discounts and, 712
  operating cycle and, 646
Average returns, 392–396
  calculating, 392
  first lesson, 395–396
  historical record, 392–394
  risk premiums, 394–395
Average tax rate, 32
  marginal rate versus, 32–34

B

Balance sheet, 23–28
  assets on, 23–24

Balance sheet *(Continued)*
common-size, 59
example of, 60
debt versus equity, 26–27
equation, 24
example of, 26
liabilities on, 24
liquidity of, 25–26
market value versus book value, 27–28
net working capital on, 25
owners' equity on, 24
percentage of sales approach and, 104–105
BankAmerica, 74
Banker's acceptance, 713
Bankers year, 65n
Bankruptcy, 594–597, **595**
absolute priority rule and, 596
agreements to avoid, 597
Chapter 11, 596
collection effort and, 723–724
costs of, *see* Bankruptcy costs
definitions of financial distress, 595
financial management and, 597
legal, 595
liquidation, 595–596
reorganization, 596–597
Bankruptcy costs, 584–586
direct, 585
financial distress costs, 585–586
indirect, 585–586
Banks and credit information, 720
Barnes & Noble, 644
Baumol-Allois-Tobin (BAT) model, 698–704
conclusion, 702
implications of, 703–704
opportunity costs and, 699
the solution, 700–701
total cost and, 700
trading costs and, 699–700
Bayerische Moterenwerke (BMW) AG, 10
Beachhead, 851
Bearer form, 214
Bear hug, 863
Bell Atlantic, 844
Bell curve, 399–400, 401
BellSouth, 207
Ben & Jerry's Homemade Inc., 311
Benchmarking, 76–79
peer group analysis, 76–79
SIC codes and, 76–77
Benchmarking *(Continued)*
time-trend analysis, 76
Benefit-cost ratio, 300
Berkshire-Hathaway, 629
Best efforts underwriting, 532
Beta coefficient, 431
portfolio, 432–433
risk premium and, 434–439
basic argument, 435–437
buy low, sell high, 438–439
fundamental result, 437–438
reward-to-risk ratio, 435
total risk versus, 431
Bid-ask spread, 226
Bidder, 843
Bid price, 226
Black-Scholes Option Pricing Model, 813–825
call option pricing formula, 813–816
changes to inputs
delta and, 819–821
implied standard deviation, 824–825
rho, 824
risk-free rate, 823–824
standard deviation, 823
stock price, 818–821
theta and, 821–823
time premiums, 822–823
time to expiration, 821–823
vega and, 823
put option valuation, 816–817
cautionary note, 817–818
Blanket inventory lien, 661
Blanket mortgages, 214
BMW, 768
Boeing, 429, 873
Bond anticipation notes (BAN), 691
Bondholders, *see* Creditors
Bond markets, 223–228
asked price, 226
bid-asked spread, 226
bid price, 226
current yield, 226
how they work, 224
price reporting, 224–228
transparency and, 224
Bonds, 24, 201–235
calculator hints, 209–210
call provision on, 480–481
convertible, *see* Convertible bonds
coupon rate, 202
coupons, 202
debt or equity, 211–212
Bonds *(Continued)*
discount, 204
face value of, 202
features of, 202
indenture, *see* Indenture
inflation and interest rates, 228–230
Fisher effect, 229–230
real versus nominal rates, 228–229
interest rate risk, 206–208
issuing, 557–558
long-term, 212–213
markets, *see* Bond markets
maturity, 202
options and risky, 827–829
premium, 204
prices of, 202
put, 222, 481
ratings, 216–218
spreadsheet strategies, 210–211
types of, 218–222
floating-rate, 220, 222
government, 218–219
junk, 221
other, 222
zero-coupon, 219–220
values and, 202–205
yields, *see* Bond yields
Bond yields, 202–205
determinants of, 230–235
default risk premium and, 234
inflation premium and, 232
interest rate risk premium and, 232
liquidity premium and, 235
taxability premium and, 235
term structure of interest rates, 230–233
yield curve and, 233–235
discount, 204
financial calculators and, 209–210
portfolio returns, 387–391, 395
premium, 204
spreadsheets and, 210–211
yield to maturity, 202
finding the, 208–211
Book balance, 675
Book value, *see* Market value, book market versus
Borrower, 211
Borrowing, short-term, 658–662
commercial paper, 661–662
secured loans, 660–661
trade credit, 662
unsecured loans, 659–660
Boston Chicken Inc., 95

Break-even analysis, 356–362
accounting, *see* Accounting break-even
average cost, 358–360
credit policy and, 716, 742
earnings before income and taxes, 573
financial, *see* Financial break-even points
fixed costs, 358
marginal cost, 358
operating leverage and, 370
total costs, 358
variable costs, 356–358
Briggs and Stratton, 509
Bristol-Myers Squibb, 724
British Rail, 144
British Telecommunications, 552
Broadcom, 23
Broker, 257–258
Business failure, 595
Business organization, 7–10
corporation, 8–10
partnership, 7–8
sole proprietorship, 7
Business plans, alternative, 97–98
Business risk, 578
Buying versus leasing, *see* Leasing, buying versus
Bylaws, 8

C

California Earthquake Authority, 222
Call option, 454, 796
equity as, on the firm's assets, 468–471
risk-free debt, 469
risky debt, 469–471
payoff profile, 797, 798
warrants versus, 477–478
Call option valuation, 459–467
arbitrages and, 460
closer look, 466–467
exercise price and, 463
at expiration, 459
intrinsic value and, 461
pricing formula, 813–816
put-call parity, *see* Put-call parity
risk-free rate and, 463
simple model, 461–463
part 2, 464
stock price and, 463
Call option valuation *(Continued)*
time to expiration and, 463
upper and lower bounds on, 459–461
variance of return and, 465–466
Call premium, 215
Call price, 800
Call protected bond, 215
Call provision, 215
Cannibalism, 314n
Capacity as credit factor, 721
Capital
cost of, *see* Cost of capital
as credit factor, 721
raising, *see* Raising capital
Capital asset pricing model (CAPM), 439–441, **440**
Capital budgeting, 5–6, 273
international, 764–766
foreign currency approach, 764, 765–766
home currency approach, 764–765
unremitted cash flows and, 766
investment criteria, *see* Investment criteria
options and, 471–476
investment timing decisions and, 471–473
managerial, *see* Managerial options
valuation of, 831–832
practice of, 298–299
Capital Cities/ABC, 849
Capital gains, 251n
as returns on investments, 382–386
taxes on, 612
Capital gains effect, 846
Capital gains yield, 251
Capital intensity ratio, 104
Capital intensive projects, 368
Capital investment decisions, 311–339
discounted cash flows, *see* Discounted cash flow (DCF) valuation
incremental cash flows, *see* Incremental cash flows
operating cash flows, *see* Operating cash flows
project cash flows, *see* Project cash flows
Capital leases, 875–876
Capital marketing history, 381–407
average returns, *see* Average returns
efficient market, *see* Efficient capital market
Capital marketing history *(Continued)*
of five types of financial investments, 386–392
lessons of
diversification and, 427–428
first, 395–396
second, 402
returns on investments and, 382–386
variability of returns, *see* Variability of returns
Capital rationing, 371
Capital restructuring, 567
Capital spending, 35, 36
example of, 40
project cash flows and, 317–318
Capital structure, 6, 567–569
bankruptcy and, *see* Bankruptcy
cost of capital and, 569
extended pie model, 591–592
financial leverage and, *see* Financial leverage
firm value and stock value, 568–569
M & M and, *see* M & M Proposition I; M & M Proposition II
marketed claims versus nonmarketed claims, 592
observed, 593–594
optimal, *see* Optimal capital structure
Capital structure weights, 501
Caption, 801
Captive finance company, 717–**718**
leases and, 875
Carrying costs, 649–651
credit cost curve and, 716–717
economic order quantity, 728, 730
inventory costs and, 725
Cash
for an acquisition, 857
common stock versus, 858
short-term finance and planning and, 640–641
cash reserves and, 653
sources and uses of, 54–56, 640–641
Cash and liquidity management, 673–691
collections, *see* Cash collection
difference between, 675
disbursements, *see* Cash disbursements
float and, *see* Float
idle cash, *see* Idle cash, investing
reasons for holding cash, 673–674

Cash and liquidity management *(Continued)*
reasons for holding cash *(Continued)*
compensating balance and, 674
costs of holding cash, 674
precautionary motive, 674
speculative motive, 673–674
transaction motive, 674
target cash balances, *see* Target cash balances
Cash break-even, 365–**366**
Cash budget, 655–657
cash balance, 656–657
cash outflows, 656
sales and cash collections, 655–656
Cash collection, 682–687
accelerating, 684–687
cash concentration, 684
components of collection time, 682
lockboxes, 683–684
over-the-counter, 682
preauthorized payment arrangement, 682–683
sales and, 655–656
Cash concentration, 684
Cash coverage ratio, 67
Cash cycle, 641–648, **642**
accounts payable period, 643
calculating, 644–647
cash flow time line, 643
defined, 643–644
events and decisions, 641–642
interpreting, 647–648
negative, 644
Cash disbursements, 687–688
controlled disbursement account, 688
controlling, 687–688
increasing float, 687
zero-balance account, 688
Cash discounts, 711–712
credit policy and, 714
Cash dividends, 606–607
chronology of, 607–608
regular, 606
standard method of payment, 607
stock repurchase versus, 623–624
types of, 606
Cash flow, 34–41
accounting break-even and, 363–364
from assets, 35–37
example of, 40–41
capital spending and, 35, 36
change in net working capital and, 35, 36–37
Cash flow *(Continued)*
change in net working capital and *(Continued)*
example of, 40–41
conclusion, 37
to creditors, 37–38
example of, 41
dividends and, 609–610
financial markets and, 17–18
free, 37, 612
from granting credit, 708
hedging, 785–786
incremental, *see* Incremental cash flows
operating, *see* Operating cash flows
project, *see* Project cash flows
projected versus actual, 350
statement of, 35, 56–58
to stockholders, 37, 38–39
example of, 41
stock valuation and, 244–245
summary, 38
unremitted, from foreign projects, 766
"Watch Cash Flow," 38–39
Cash flow time line, 643
Cash-out, 649
Cash outflows, 657
Cash ratio, 65
Caterpillar Financial, 875n
Certificates of deposit (CDs), 691
Character as credit factor, 721
Charmin Paper Company, 851
Check kiting, 681
Chevron, 844
Chicago and Eastern Railroad, 207
Chicago Board of Trade (CBT), 791
Chicago Board Options Exchange (CBOE), 454, 457, 807
Chicago Mercantile Exchange (CME), 791
China Southwest Airlines, 873, 874
Chrysler, 68, 98, 298, 481–482
Cisco Systems, 681, 725
CitiCapital, 874
Citigroup, 15
Cleanup period, 659
Clear Channel Communications, 30
Clientele effect, 617–618
Clienteles, 617
Coca-Cola, 23, 207, 314, 509, 625
Colgate, 707
Collar
on bonds, 220
Collar *(Continued)*
on interest rates, 800–801
Collateral, 214
as credit factor, 721
Collateral value, 711
Collected balance, 675
Collection float, 676–677, 678
Collection policy, 708, 721–724
aging schedule, 723
collection effort, 723–724
monitoring receivables, 721, 723
Comcast Corporation, 863
Commercial draft, 713
Commercial paper, 661–662
described, 691
Commission brokers, 258
Committed line of credit, 659
Commodity price risk, hedging, 797–800
Commodity price volatility, 780, 781
Commodity swaps, 794
Common-base year statement, 60–**61**
common-size statement and, 61, 62
Common equity, *see* Owners' equity
Common-size statements, 59–60
balance sheets, 59
example of, 60
base-year analysis and, 61, 62
income statements, 59–60
example of, 61
statements of cash flow, 60
Common stock, 253–256
buying an election, 254
classes of, 255
cumulative voting, 253–254
dividends from, *see* Dividends
growth, 245, 402
portfolio returns, 386–391, 395
proxy voting, 254–255
shareholder rights, 253–254
other, 255
straight voting, 254
tender offer for, 843–844
Common stock valuation, 243–253
cash flows, 244–245
constant growth, 246–248
growth stocks and, 245
nonconstant growth, 249–251
required return and, 251–252
summary of, 252
supernormal growth, 249–251
zero growth, 245–246
Compaq Computer, 97, 660–661
Compensating balances, 659

Compensating balances *(Continued)*
cost of, 659–660
as reason to hold cash, 674
Competition and credit period, 711
Competitive offer basis, 532
Complementary resources, 852
Compounding, 130
continuous, 180–181
effective annual rates and, 176–177
put-call parity and, 810–812
Compound interest, 130, 134
Compound options, 801
Concentration banks, 684
Conditional sales agreement lease, 876
Conditions as credit factor, 721
Conglomerate acquisition, 845
Consolidated Edison (Con Ed), 617
Consolidation, 843
Consumer credit, 707
Consumer demand and credit period, 711
Consumer Reports, 13
Contel Corporation, 860, 861
Continental Airlines, 597
Contingency planning, 474–475
option to abandon, 474–475
option to expand, 474
option to suspend or contract operations, 475
Continuous compounding, 180–181
put-call parity and, 810–812
Contribution margin per unit, 360
Controlled disbursement account, 688
Control of the firm, 15
Conventional factoring, 660
Conversion premium, 478
Conversion price, 478
Conversion ratio, 478
Conversion value, 479
Convertible bonds, 222, **478**–480
conversion value, 479
features of, 478
floor value, 479–480
option value, 480
straight bond value, 479
Corning, Inc., 273, 559, 626
Corporate charter, 859
Corporate finance, 4
international, *see* International corporate finance
introduction to, 3–19
Corporate investors, 615
Corporate securities and options, 477–482
Corporate securities and options *(Continued)*
call provision on a bond, 480–481
convertible bonds and, *see* Convertible bonds
insurance, 481–482
loan guaranties, 481–482
put bonds, 481
warrants, *see* Warrants
Corporations, 8–9
control of, 15
financial markets and, 17–19
international, 9–10
tax rates for, 32
Cost of acquisitions, 856–858
cash acquisition, 857
cash versus common stock, 858
stock acquisition, 857–58
Cost of capital, 442, 493–516
debt, 499–500
divisional, 511
equity, *see* Cost of equity
financial policy and, 495
hurdle rates and, 515
individual project, 509–513
preferred stock, 500
pure play approach, 511–512
required return versus, 494–495
subjected approach, 512–513
unlevered, 580–581
weighted average, *see* Weighted average cost of capital (WAAC)
Cost of credit, 712
Cost of debt, 499–500
Cost of equity, 495–499
capital structure and, 575–578
dividend growth model approach, 495–497
example of, 498–499
M & M Propositions and, 582–583
security market line approach, 497–499
Cost of money, 493n
Cost of preferred stock, 500
Cost reduction benefits from mergers and acquisitions, 851–852
complementary resources, 852
economies of scale, 851
vertical integration, 851–852
Costs. *See also specific types of costs*
agency, 14
average, 359–360
effects of credit policy on, 713
fixed, 358
Costs *(Continued)*
marginal, 358–360
time and, 30–32
total, 358
variable, 356–358
Coupon, 202
semiannual, 205
Coupon rate, 202
Covad Communications, 596
Covered interest arbitrage, 760–761
Credit, 707–724
cash flows form granting, 708
consumer, 707
policy, *see* Credit policy
receivables and, 707–709
trade, 707
Credit analysis, 708, 718–721
evaluation of scoring, 721
five Cs of credit, 721
granting credit, 718–720
one-time sale, 719
repeat business, 719–720
sources of credit information, 720–721
Credit cost curve, 716–717
Credit information, 720–721
Credit instruments, 712–713
Creditors (Bondholders), 24, 211
cash flow to, 37–38
Credit period, 710–711
factors that influence, 711
invoice date, 710
length of, 710–711
Credit policy, 713–724, 738–742
cash discount and, 714
components of, *see* Collection policy; Credit analysis; Terms of sale
cost effects, 713
cost of debt and, 714
discounts, default risk and, 740–742
evaluating a proposal, 714–716
accounts receivable approach, 739–740
break-even and, 716, 742
net present value and, 714–715, 741–742
one-shot approach, 739
optimal, 716–718
organizing the credit function, 717–718
total credit cost curve, 716–717
probability of nonpayment and, 714
revenue effect, 713

Credit reports, 720
Credit risk, 711
  forward contracts and, 789–790
Credit scoring, 721
Cross-hedging, 791, 793
Crossover rate, 295–296
Cross-rate, 750, 754–755
  triangle arbitrage and, 755
Crown jewel, 863
Cumberland Resources, 354
Cumulative voting, 253–254
Currency
  appreciation and depreciation, 759
  foreign, *see* Foreign exchange markets
  international symbols, 752
Currency swap, 751
  hedging with, 793–794
Current assets, 23, 24, 648–655
  alternative financing policies for, 651–654
    compromise approach, 654
    considerations in analysis of, 653
    different policies, 652–653
    ideal case, 651–652
  on the balance sheet, 640
  carrying costs of, 649–651
  current liabilities and, 654–655
  flexible short-term policies and, 648–651
  restrictive short-term policies and, 649–651
  shortage costs and, 649–651
  size of firm's investment in, 648–651
Current income, desire for, 614–615
Current liabilities, 24
  current assets and, 654–655
  types of, 640
Current ratio, 63–64
Current yield, 226
Customer type and credit period, 711

D

DaimlerChrysler AG, 98, 298, 481–482, 639
Date of payment, 608
Date of record, 607–608
Days' sales in inventory, 68
Days' sales in receivables, 69, 709
  operating cycle and, 646
Dealer, 257–258
Dealer markets, 18–19
Debenture, 214
Debt
  cost of, 499–500
    credit policy and, 714
  equity versus, 26–27, 211–212
  long-term, *see* Long-term debt
  short-term, 212
  subordinated, 215
Debt-equity ratio, 66. *See also* Capital structure
Debtor, 211
Debt ratio, 66
Debt securities, 211–212
  bonds, *See* Bonds
Declaration date, 607
Deed of trust, 213
Default-free, pure discount bonds, 231
Default risk, 690, 691
  discounts and, 740–742
Default risk premium, 234
Defensive tactics, 859–863
  corporate charter, 859
  exclusionary self-tenders, 860
  going private, 862
  greenmail, 860
  leveraged buyouts, 862
  poison pills, 860, 862
  repurchase agreements, 859–860
  share rights plans, 860–862
  standstill agreements, 859–860
Deferred call provision, 215
Degree of operating leverage (DOL), 368–369
Dell Computer, 97, 628
Delta, 819–821
Delta Airlines, 69
Depository transfer check (DTC), 684
Depreciable basis, 322n
Depreciation, 30, 65n
  project cash flows and, 322–324
    book value versus market value, 323–324
    modified ACRS, 322–323, 324
Depreciation tax shield, 333
Derivative securities, 778
  hedging and, *see* Hedging
  use of, 782
Derived-demand inventories, 731, 733
Deutsche Bank, 23
Dilution, 554–557
  of proportionate ownership, 555
  of value, 555–557
Direct bankruptcy costs, 585
Direct exchange rate quote, 753–754
Direct leases, 874
Disaster bonds, 222
Disbursement float, 675–678
  average daily, 677–678
  increasing, 687
Discount bond, 204
Discounted cash flow (DCF) return, *see* Internal rate of return (IRR)
Discounted cash flow (DCF) valuation, 139, 157–87, **275**
  annuities, *see* Annuities
  to buy or not to buy, 335
  cost-cutting proposals, 333–334
  effective annual rates and, *see* Effective annual rates (EARs)
  equipment options with different lives, 337–338
  equivalent annual costs, 338–339
  loan amortization and, 182–186
  multiple cash flows, 158–165
    future value of, 158–161
    present value of, 161–164
    spreadsheets for, 164
    timing of, 165
  net present value and, 275
  perpetuities, 174–175
  setting the bid price, 335–337
Discounted payback, 282–285
  advantages and disadvantages of, 285
  calculating, 285
  rule, 282
Discounted payback period, 282–283, 300
Discount factor, 139
Discounting an announcement, 424
Discount rate, 139–141
  appropriate, 494
  determining, 143–146
  mergers and acquisitions and, 854
Discounts
  cash, 711–712
  default risk and, 740–742
  foreign exchange, 756
  trade, 712
Disney, 15, 207, 314, 473–474, 849
Distribution, 606
Diversifiable risk, 429, 430
Diversification, 427–430
  effect of, 427–428
  mergers and, 829–830, 856
  principle of, 428–**429**
  standard deviation and, 427–428
  systematic risk and, 429–430
  unsystematic risk and, 429

Dividend growth model, 247–248
cost of equity and, 495–497
advantages and disadvantages of, 497
estimating *g,* 496–497
implementing the approach, 496
Dividend market, 618
Dividend payout ratio, 103, 607
Dividend policy, 605, 609–629
establishing, 618–623
compromise policy, 621–623
dividend stability, 620–621
residual dividend approach, 618–620
target payout ratio, 622–623
high payout factors, 614–616
conclusion, 616
corporate investors, 615
desire for current income, 614–615
legal reasons, 616
tax-exempt investors, 615–616
textbook reasons, 614
uncertainty resolution, 615
irrelevance of, 609–611
dividends set equal to cash flow, 609–610
homemade dividends and, 610–611
initial dividend greater than cash flow, 610
test questions, 611
low payout factors, 612–614
dividend restrictions, 614
expected return, 613
flotation costs, 613–614
taxes, 612–613
reasons firms pay dividends, 621
resolution of real-world factors, 616–618
clientele effect, 617–618
information content of dividends, 616–617
stock dividends, *see* Stock dividends
stock split, *see* Stock split
Dividend reinvestment plans (DRIPs), 611
Dividends, 255, 606–629
cash, *see* Cash dividends
characteristics of, 255–256
date of payment, 608
date of record, 607–608
declaration date, 607
distribution versus, 606
Dividends *(Continued)*
dividend policy and, 616–617, *See also* Dividend policy
ex-dividend date, 607, 608–609
forms of, 606
growth in, 137
information content of, 616–617
preferred stock, 256
restrictions on, 614
as returns on investments, 382–386
stock, *see* Stock dividends
stock valuation and, 244–251
cash flows and, 244–245
constant growth, 246–248
nonconstant growth, 249–251
supernormal growth, 249–251
zero growth, 245–246
Dividends per share, 29, 607
Dividend yield, 251, 607
Divisional cost of capital, 511
Dornier GmBH, 10
Double taxation, 9
Dow Corning, 597
Dow Jones Industrial Average (DJIA), 429
Du Pont Corporation, 74
Du Pont identity, 73–75

E

Earnings before interest and taxes (EBIT)
break-even, 573
earning per share versus, 571–572
Earnings dilution, 478
Earnings per share (EPS), 28, 71
calculating, 29
earnings before interest and taxes and, 571–573
mergers and acquisitions and, 855
return on equity and, 570–571
share repurchase and, 625–626
Eastman Chemical, 493
weighted average cost of capital and, 503–506
calculation of, 505–506
cost of debt, 504–505
cost of equity, 503–504
eBay, 243
EBDIT (earnings before depreciation, interest, and taxes), 67
EchoStar Communications, 863
Economic exposure, 786
Economic order quantity (EOQ) model, 727–733, **730**
carrying costs and, 728, 730
derived-demand inventories, 731, 733
extensions to, 731
inventory depletion and, 727–728
just-in-time inventory, 731, 733
materials requirements planning, 731
reorder points, 731, 732
safety stocks, 731, 732
shortage costs and, 728–729
total costs and, 729–730
Economic value added (EVA), 509
Economies of scale, 851
Effective annual rates (EARs), 176–181, **177**
annual percentage rate and, 179
calculating and comparing, 177–179
compounding and, 176–177
continuous, 180–181
cost of credit and, 712
table of, 180
Efficient capital market, 403–407
forms of, 407
hypothesis, 404–405
misconceptions about, 405–407
price behavior in, 403–404
Efficient markets hypothesis (EMH), 404–405
E. F. Hutton, 681
Electronic communications networks (ECNs), 261
Electronic data interchange (EDI), 681
Electronic Data Systems, 255
Electronic lockboxes, 684
Embedded debt cost, 499n
Employee stock options, 467–468
features of, 467–468
repricing, 468
End of month (EOM) dating, 710
Enron, 53
EquiCredit, 777
Equity
as a call option on the firm's assets, 468–471, 827
debt versus, 26–27, 211–212
owners', *see* Owners' equity
valuing, in a leveraged firm, 826–827
Equity kickers, 477
Equity multiplier, 66

Equity securities, 211–212
  stock, *see* Stock
Equivalent annual costs (EAC), 338–339
Erosion, 314
Estimation risk, 350–351
Ethics
  agency and, *see* Agency problem
  market incentives for, 13
eToys, 534
Euro, 749, 751
Eurobonds, 750
Eurocurrency, 750
Euro Disney (ED), 473–474
European Economic and Monetary Union (EMU), 749
European exchange rate quote, 754
European option, 454, 796
  pricing model for, *see* Black-Scholes Option Pricing Model
Excess return, 395
Exchange rate risk, 766–769
  hedging, with options, 800
  long-run exposure, 767–768
  managing, 769
  short-run expenses, 766–767
  translation exposure, 768–769
Exchange rates, 753–755
  cross-rates, 754–755
  forward, 756
  quotations, 753–754
  spot, 755
  triangle arbitrage, 755
  volatility in, 779–780
Exclusionary self-tenders, 860
Ex-dividend date, 607, 608–609
Exercise price, 454, 796, 808
Exercising the option, 454
Expected return, 416–418
  dividends, personal taxes and, 613
  portfolio, 420–421
Expected risk premium, 417
Expiration date, 454, 796
Ex-rights date, 550
External financing needed (EFN)
  capacity usage and, 107
  defined, 105
  growth and, 109–116
    determinants of, 114
    internal rate of, 112, 115
    sustainable rate of, 112–113, 115, 116
Extra cash dividend, 606
Exxon Mobil, 431, 432, 673, 676

F

Face value, 202
Factoring receivables, 660–661
  cost of, 661
Federal Bankruptcy Reform Act of 1978, 595, 596
Federal Reserve, 779
Fiat SpA, 10
Fidelity Magellan Fund, 400
Fiduciary responsibility, 616
Field warehouse financing, 661
Financial Accounting Standards Board (FASB), 769, 877
Financial break-even points, 365–367, **366**
  accounting break-even, 365
  cash break-even, 365–366
  conclusion, 366–367
  summary of, 367
Financial calculators, 135
  bond prices and yields, 209–210
  future values, 135–136
    annuity, 173
  getting the wrong answer using, 136–137
  number of payments, 170
  number of periods, 147
  present values, 140
    annuity, 168, 169
    with multiple future cash flows, 163–164
  rate, 172
  unknown rates, 145
Financial distress
  bankruptcy and, *see* Bankruptcy
  capital structure of, 590
  definitions of, 595
Financial distress costs, 585–586
Financial electronic data interchange (FEDI), 681
Financial engineering, 777. *See also* Hedging
Financial leases, 875–876
Financial leverage, 27, 570–574
  basics of, 570–573
  corporate borrowing and homemade leverage, 573–574
  earnings before interest and taxes and, 571–573
  earnings per share and, 570–573
  ratios, 65–67
  return on equity and, 570–571
  unlevering stock, 574
Financial management decisions, 4–6
  capital budgeting, 5–6
  capital structure, 6
  working capital management, 6
Financial management goals, 10–12
  agency problems and, 12, 14
  general, 12
  maximizing stock value, 11–12
  possible, 10–11
Financial manager, 4
  bankruptcy process and, 597
  inventory policy and, 724
Financial markets and the corporation, 17–19
  cash flows to and from the firm, 17–18
  primary versus secondary, 18–19
Financial planning, 95–117
  aggregation and, 97
  alternative business plans and, 97–98
  avoiding surprises, 98
  basic policy elements of, 96
  conclusion, 99
  described, 95, 96
  dimensions of, 97–98
  ensuring feasibility and internal consistency, 98–99
  examining interactions, 98
  exploring options, 98
  external financing and, *see* External financing needed (EFN)
  growth as goal of, 97
  models of, *see* Financial planning models
  planning horizon, 97
  six Ps of, 96
Financial planning models, 99–102
  asset requirements and, 100
  caveats regarding, 116–117
  economic assumptions and, 100
  financial requirements and, 100
  the plug and, 100
  pro forma statements and, 100
  sales forecast and, 99–100
  simple example of, 101–102
    extended version of, *see* Percentage of sales approach
Financial policy
  cost of capital and, 495
  growth and, 112–114
    determinants of, 114
    internal growth rate, 112
    sustainable growth rate, 112–113

Financial ratios, 62. *See also* Ratio analysis
Financial risk, 578
impact of, 780–781
management of, *see* Risk management
Financial statements
analysis of, 75–82
benchmarking, *see* Benchmarking
external uses, 76
internal uses, 75–76
problems with, 79, 82
ratio, *see* Ratio analysis
balance sheet, *see* Balance sheet
credit information and, 720
income statement, *see* Income statement
leases and, 887–888
standardized, *see* Standardized financial statements
Financial structure decisions, *see* Capital structure
Finished goods inventory, 724–725
Firm commitment underwriting, 532
First-stage financing, 526
First Union, 841, 844
Fisher effect, 229–230
international, 763
Five Cs of credit, 721
Fixed assets, 23–24
Fixed asset turnover, 69
Fixed costs, 358
Fleet capital, 874
Flip-in provision, 862
Float, 675–682
availability delay and, 677, 678–679
collection, 676–677, 678
cost of, 679–680
disbursement, 675–678
end of, 681
ethical and legal questions, 680–681
mailing time and, 677, 678
management of, 677–681
measuring, 677–679
net, 676–677
permanent, 679
processing delay and, 677
reducing, 680
Floating-rate bonds, 220, 222
Floor, 800–801
Floor brokers, 258–259
Floor planning, 661
Floor trailers, 259
Floor value, 479–480
Flotation costs, 542–546
abnormal returns, 542
case study of, 543–546
dividend policy and, 613–614
Green Shoe option, 543
gross spread, 542
indirect expenses, 542
other direct expenses, 542
underpricing, 543
weighted average cost of capital and, 513–516
basic approach, 513–514
net present value and, 515–516
Follow-on offering, 531n
Ford Motor Company, 7, 59, 68, 255, 558–559, 790
Forecasting risk, 350–351
Foreign bonds, 750
Foreign currency approach to capital budgeting, 764, 765–766
Foreign exchange markets, 751–756
currency symbols, 752
exchange rates and, *see* Exchange rates
forward trade, 756
participants in, 751
spot trade, 755–756
types of transactions, 755–756
Forest Oil, 23
Fortune, 453
Forward contracts, 787–790
basics of, 787
forward price and, 787
hedging with, 788–790
options versus, 797
payoff profile for, 788
illustrated, 787
settlement date and, 787
Forward exchange rate, 756
unbiased, 762
Forward trade, 756
FoxMerger Health, 724
Free cash flow, 37, 612
Frequency distributions, 396. *See* also Variability of returns
Funding, 212n
Futures contracts, 790–793
cross-hedging, 791, 793
futures exchanges, 791
hedging with, 791, 793
marking-to-market and, 790
open interest, 791
prices for, 791
illustrated, 792
Futures contracts *(Continued)*
settlement price, 791
trading in, 790–791
Futures options, 797–880
illustrated, 799
Future value (FV), 130–138
for annuities, 172–173
compounding and, 130
compound interest and, 130, 134
discount rate and, 143–146
evaluating investments using, 142–143
finding the number of periods and, 146–149
interest on interest and, 130–131
of multiple cash flows, 158–161
multiple-period investing, 130–134
present versus, 142–143
simple interest and, 130, 131
single-period investing, 130
spreadsheets for, 147–148
using a financial calculator, 135–137
Future value interest factor, 131

G

Gateway, 97, 718
General cash offer, 529
General Electric (GE), 7, 23, 27, 605
General Electric Aviation Services, 873, 874
Generally Accepted Accounting Principles (GAAP), 27
income statement and, 29–30
General Motors (GM), 59, 68, 74–75, 95, 107, 220, 243, 255, 256, 431
General Motors Acceptance Corporation (GMAC), 129, 718, 875n
General partners, 7
General partnership, 7–8
General Theory of Employment, Interest, and Money, The (Keynes), 673
Gillette, 707
Gilts, 751
Globalization, 750
GlobalStar, 718
Going-private transactions, 845, 862
Golden parachutes, 863
Goldman, Sachs and Co., 9
Goodwill, 847–848
Government bonds, 218–219

Government bonds *(Continued)*
portfolio returns, 387–391, 395
Greenmail, 859
Green Shoe provision, 533, 543
Gross spread, 532, 542
Growing perpetuity, 246
Growth stocks
investing in, 402
valuation of, 245
GTE, 844, 860n

H

Hard rationing, 371
Harley-Davidson, 263
Hedging, 777–801
cash flow, 785–786
cross-hedging, 791, 793
economic exposure, 786
with forward contracts, 788–790
caveat concerning, 788
credit risk and, 789–790
in practice, 790
with futures contracts, 791, 793
long-term exposure, 786
with option contracts, *see* Option contracts
price volatility and, 777–782
commodities, 780, 781
derivative securities and, 778, 782
exchange rates, 779–780
historical perspective on, 392, 778
impact of financial risk, 780–781
interest rates, 779
transitory, 784–785
short-run exposure, 784–785
with swap contracts, *see* Swap contracts
transaction exposure, 785
Hershey Foods Corporation, 320, 515
Hewlett-Packard (HP), 111, 314, 429, 874–875
Historical cost, 27
H. J. Heinz, 96
Holder-of-record date, 550, 607
Home currency approach to capital budgeting, 764–765
Homemade dividend policy, 610–**611**
Homemade leverage, 573–574
Honda Motor Co., 107, 768
Horizontal acquisition, 844
Hughes Aircraft, 255
Hughes Electronics, 863
Hurdle rates, 515

I

IBM, 69, 98, 475, 625, 769, 793
IBM Global Financing, 874
Idle cash, investing, 688–691
planned or possible expenditures, 690
seasonal or cyclical activities, 689
short-term securities, 690
temporary cash surpluses, 689–690
types of money-market securities, 690–691
Ill will, 847n
Immunization, 777. *See also* Hedging
Implied standard deviation (ISD), 824–825
Income bonds, 222
Income statement, 28–32
common-size, 59–60
example of, 61
equation, 28
example of, 29
GAAP and, 29–30
noncash items, 30
percentage of sales approach and, 102–103
time and costs, 30–32
Incremental cash flows, 312–315
erosion and, 314
financing costs and, 315
from leasing, 879–881
mergers and acquisitions and, 854
net working capital and, 314
opportunity costs and, 313–314
other issues, 315
as relevant cash flows, 312
side effects and, 314
stand alone principle and, 312
sunk costs and, 313
Incremental cost, 358–360
Incremental revenue, 359–360
Indenture, 213–216
bearer form, 214
call premium, 215
call protected bond, 215
call provision, 215
debenture, 214
deferred call provision, 215
note, 214
protective covenants, 215–216
Indenture *(Continued)*
registered form, 214
repayment, 215
security, 214–215
seniority, 215
sinking fund, 215
terms, 214
Indirect bankruptcy costs, 585–586
Indirect exchange rate quote, 754
Inflation
interest rates and, 228–230
-linked bond, 222
year-to-year, 392, 778
Inflation-linked bond, 222
Inflation premium, 232
Information content effect, 616–**617**
Initial Public Offering (IPO), 525, 529
underpricing of, *see* Underpricing of IPOs
Innovation, 424–425
Inside quotes, 261
Insolvency, 595
Insurance, 481–482
co-insurance effect, 830
Intangible assets, 24
Interest on interest, 130–131
Interest-only loans, 182
Interest rate caps, 800–801
Interest rate parity (IRP), 761–762
Interest rate risk, 206–208, 690
hedging, with options, 800–801
Interest rate risk premium, 232
Interest rates
annual, 179
effective, *see* Effective annual rates (EARs)
Fisher effect and, 229–230
real versus nominal, 228–229
relative, 653
stated, 177
term structure of, 230–233
volatility in, 779
Interest rate swap, 751, 794
example of, 795, 796
Interest tax shield, 579–580
Internal growth rate, 112, 115
Internal rate of return (IRR), 287–296, 300
advantages and disadvantages of, 296
calculating, 290
crossover rate and, 295–296
multiple rates of return and, 293

Internal rate of return (IRR) *(Continued)*
mutually exclusive investment decisions and, 294–295
net present value profile and, 289–290
nonconventional cash flows and, 291–293
problems with, 291–296
redeeming qualities of, 296
rule, 288
spreadsheet for, 291
Internal Revenue Service (IRS), 9. *See also* Taxes/taxation
International corporate finance, 749–770
capital budgeting, 764–766
foreign currency approach, 764, 765–766
home currency approach, 764–765
unremitted cash flows and, 766
covered interest arbitrage, 760–761
exchange rate risk, *see* Exchange rate risk
exchange rates, *see* Exchange rates
foreign exchange, *see* Foreign exchange markets
forward rates, 762
future spot rates, 762
interest rate parity, 761–762
international Fisher effect, 763
political risk, 770
purchasing power parity, *see* Purchasing power parity (PPP)
terminology, 750–751
uncovered interest parity, 763
International Fisher effect (IFE), 763
International Lease Finance, 874
International Paper Co., 222
Interval measure, 65
Intrinsic value, 461
Inventory depletion, 727–728
Inventory loans, 661
Inventory management, 724–733
ABC approach, 726
carrying costs and, 725
derived-demand, 731, 733
economic order quantity and, *see* Economic order quantity (EOQ) model
financial manager and, 724
just-in-time, 731, 733
shortage costs and, 725
types of inventory and, 724–725
Inventory period, 642, 646
Inventory turnover, 67–68
operating cycle and, 645–646
Investment criteria, 273–300
average accounting return, 285–287
discounted payback, 282–285
internal rate of return, *see* Internal rate of return (IRR)
net present value, *see* Net present value (NPV)
payback rule, *see* Payback rule
practice of capital budgeting, 298–299
profitability index, 297
summary of, 300
Investment timing decision, 471–473, **472**
Invoice, 710
Invoice date, 710

J

Jaguar, 790
J. C. Penney, 424, 457
John Deere Capital, 558
Joint stock companies, 9, 10
J. Peterman Co., 97
Juniper Networks, 381
Junk bonds, 221
Just-in-time (JIT) inventory, 731, 733

K

Kanban, 733
Keiretsu, 733
Kellogg Co., 415
Krispy Kreme's, 534

L

L. A. Lakers, 314
Leasing, 873–888
accounting and, 876–878
buying versus, 874–875, 881–884
misconception concerning, 882, 884
net present value analysis, 882, 883
potential pitfalls, 882
preliminary analysis, 881–882
capital, 875–876
Leasing *(Continued)*
cash flows from, 879–881
conditional sales agreement, 876
direct, 874
financial, 875–876
leveraged, 876
net advantage to, 882
operating, 875
paradox, 884–885
reasons for, 885–888
dubious, 887–888
good, 886–887
other, 888
sale and leaseback, 876
service, 875
single-investor, 876
taxes and, 878–879
advantages, 886–887
cash flows and, 881
IRS and, 878–879
tax-oriented leases, 876
Ledger balance, 675
Lender, 211
Lessee, 874
Lessor, 874
Letter of credit, 660
Level coupon bond, 202
Leverage
financial, *see* Financial leverage
operating, *see* Operating leverage
valuing equity and, 826–827
Leveraged buyouts (LBOs), 221, **845**
as defensive tactic, 862
Leveraged leases, 876
Liabilities on the balance sheet, 24, 640
Liability and business organization, 7, 8
Limited liability, 8
Limited liability company (LLC), 9, 10
Limited partners, 7
Limited partnership, 7
Line of credit, 659
Liquidating dividend, 606
Liquidation, 595
Liquidity
accounting, 640
on the balance sheet, 25–26
management of, *see* Cash and liquidity management
measures of, 63–65
Liquidity premium, 232n, **235**
Liquid yield option note (LYON), 222
Listing, 19
Loan guarantees, 481–482

Loans, 181–186
amortized, 182–186
partial, 185
spreadsheet for, 186
Stafford, 185–186
bonds, *see* Bonds
commercial paper, 661–662
interest-only, 182
pure discount, 181–182
secured, 660–661
trade credit, 662
unsecured, 659–660
Lockboxes, 683–684
Lockheed Martin, 481–482
Lockup, 863
Lockup agreement, 533
London Interbank Offer Rate (LIBOR), 751
London International Financial Futures Exchange (LIFFE), 791
London Stock Exchange (LSE), 19
Long-run exposure to exchange rate risk, 767–768
Long-term debt, 212–213. *See also* Bonds; Leasing
issuing, 557–558
Long-term debt ratio, 66
Long-term financial planning, *see* Financial planning
Long-term liabilities, 24
Long-term solvency measures, 65–67
Lucent Technology, 217–218, 559, 718

M

McCrory Corp., 585
McDonald's, 95
McGraw-Hill, 243, 608–609
Mailing time, 677, 678
accelerating collections and, 684–687
Malaysian Airlines, 876
Management buyouts (MBOs), 845
Managerial compensation, 15
Managerial options, 473–476
capital budgeting example, 475–476
conclusion, 476
contingency planning, 474–475
strategic options, 476
M & M Proposition I, 575
marketed claims versus nonmarketed claims, 592
M & M Proposition I *(Continued)*
optimal capital structure and, 586–590
pie model, 575
extended, 591–592
taxes and, 580–581, 584
unlevered cost of capital and, 580–581
M & M Proposition II, 576
business risk and, 578
cost of equity capital and, 576–578
financial risk and, 578
taxes and, 581–582, 584
weighted average cost of capital and, 581–582
Manpower Inc., 65
Manville, 597
Marathon Oil, 853, 856
Marginal cost, 358–360
Marginal revenue, 359–360
Marginal tax rate, 32
average rate versus, 32–34
Marketability, 690
Marketed claims, 592
Market portfolios, 439
Market risk premiums, 439
Market risks, 425, 430
Market-to-book ratio, 72–73
Market value
book value versus, 27–28
depreciation and, 323–324
dilution and, 555–557
mergers and acquisitions and, 854
Market value added (MVA), 509
Market value ratios, 71–73
Marking-to-market, 790
Martha Stewart Omnimedia, 534
Materials requirements planning (MRP), 731
Maturity, 202
short-term securities and, 690
yield to, 202
Maturity factoring, 660
Maturity hedging, 653
MCI WorldCom, 863
Medical Economics, 186
Members (NYSE), **258**–259
Mercedes-Benz, 98, 768
Mergers and acquisitions, 841–865, **843**
accounting for, 846–848
goodwill and, 847–848
pooling of interests, 847
purchase method, 847
Mergers and acquisitions *(Continued)*
acquisition of assets and, 844
acquisition of stock, 843–844
agreement of merger, 853
bidder, 843
classifications of acquisitions, 844–845
consideration in, 843
consolidation, 843
cost of, *see* Cost of an acquisition
defensive tactics, *see* Defensive tactics
evidence on, 864–865
financial side effects of, 854–856
diversification, 856
earnings per share growth, 855
gains from, 849–854
avoiding mistakes, 853–854
cost reductions, 851–852
inefficient management and, 854
lower taxes, 852–853
reductions in capital needs, 853
revenue enhancement, 850–851
synergy, 849–850
going-private transactions, 845
leveraged buyouts, 845
option valuation and, 829–830
proxy contest, 845
special problems and, 841–842
takeovers, 845
target firm, 843
taxes and, 846
reduction in, 852–853
tender offer and, 843–844
vocabulary for, 863
Merrill Lynch, 222, 258
Mesa Partners II, 860
Metallgesellschaft AG, 793
Metricom, Inc., 477
Metro-Goldwyn-Mayer (MGM), 552
Mezzanine level financing, 526
MG Corp., 793
Microsoft, 5, 31, 429, 628, 808, 850, 852
Miller-Orr model, 702–704
basic idea, 702
implications of, 703–704
using the model, 702–703
Modified ACRS depreciation (MACRS), 322–323, 324
Money market, 688–689
types of securities, 690–691
Moody's, 216–218, 691
Mortgage securities, 214

Mortgage trust indenture, 214
Motorola, 424
MP3.com, 525
Multicom Publishing Inc., 543–546
Multinationals, 749
Multiple rates of return, 293
Municipal notes and bonds (munis), 218
Mutually exclusive investment decisions, 294–295

N

NASDAQ (National Association of Securities Dealers Automated Quotation system), 19, 260–263, 381, 629
  as an over-the-counter market, 261
  electronic communications networks, 261
  inside quotes, 261
  operations of, 260–261
  participants, 261
  reporting by, 263
  system, 261–262
NBC, 349
NCR, 629
Negotiated offer basis, 532
Net advantage to leasing (NAL), 882
Net cash inflow, 657–658
Net float, 676–677
Net income, 28
Net operating losses (NOL), 852
Net present value (NPV), 274–278, **275,** 300
  basic idea, 274–275
  credit policy and, 714–715, 741–742
  discounted cash flow valuation and, 275
  estimating, 275–277
  flotation costs and, 515–516
  leasing and, 882
  rule, 276–277
  using, 277
  spreadsheets for, 277–278
  value added and, 274–275
Net present value estimates, 349–351
  basic problem, 350
  forecasting risk, 350–351
  projected versus actual cash flows, 350
  sources of value, 351
Net present value profile, 289–290
Netscape, 844
Net working capital (NWC), 25, 639
  on the balance sheet, 25
  cash flows and, 35, 36–37
    example of, 40–41
    incremental, 314
    project, 317–318, 319, 321
  short-term finance and planning and, 640–641
Net working capital to total assets ratio, 65
Net working capital turnover, 69
Net worth, *see* Owners' equity
New York Mercantile Exchange (NYME), 791
New York Stock Exchange (NYSE), 19, 224, 255, 258–260, 605
  commission brokers, 258
  floor activity, 259–260
  floor brokers, 258–259
  floor traders, 259
  members of, 258–259
  operations of, 259
  order flow, 259
  reporting by, 263
    illustrated, 264
  specialist, 258
  specialist's post, 259–260
  SuperDOT system, 259
Niagara Mohawk, 558
Nissan, 146, 314, 767
Nominal rates, 228–229
Noncash items, 30
Noncommitted line of credit, 659
Nondiversifiable risk, 430
Nonmarketed claims, 592
Nordstrom, 13
Normal distribution, 399–40
  illustrated, 401, 814
North American Industry Classification System (NAICS), 77
Note, 214

O

Odd-lot trading, 628
Off-balance sheet financing, 876–877. *See also* Leasing
100 percent financing, 888
One-shot approach to credit analysis, 739
Open-account credit, 712–713
Operating cash flows, 35–36, 331–333
Operating cash flows *(Continued)*
  bottom-up approach, 331–332
  example of, 39–40
  project, 317
  sales volume and, 364–365
  tax shield approach, 332–333
  top-down approach, 332
Operating cycle, 641–648, **642**
  accounts receivable period, 642
  calculating, 644–647
  credit period and, 710–711
  defined, 642–643
  events and decisions, 641–642
  inventory period, 642
  managers and, 644, 645
  organization chart and, 644
Operating leases, 875
Operating leverage, 368–370
  basic idea, 368
  break-even and, 370
  degree of, 368–369
  implications of, 368
  measuring, 368–370
Opportunity costs, 313–314
  credit cost curve and, 716–717
Optimal capital structure, 569, 586–590
  cost of capital and, 587–588
  financial distress and, 590
  recap of, 588–590
  static theory, 586–587
  taxes and, 590
Option contracts, 796–801
  forwards versus, 797
  futures, 797–800
    illustrated, 799
  hedging with, 797–801
    commodity price risk, 797–800
    exchange rate risk, 800
    interest rate risk, 800–801
    option, 797, 798
  payoff profiles, 797
    illustrated, 798
  terminology, 796
Option premium, 797
Options, 453–482
  American, 454
  applications of options analysis, 470
  call, *see* Call options
  capital budgeting and, 471–476
    investment timing decision, 471–473
    managerial options, *see* Managerial options

Options *(Continued)*
corporate securities and, *see* Corporate securities and options
employee stock, 467–468
European, 454
exercising, 454
expiration date of, 454
implicit, 471
payoffs, 456–458
put, *see* Put options
stock option quotations, 454–457
strike price and, 454
Option valuation, 459–467
Black-Scholes model, *see* Black-Scholes Option Pricing Model
call, *see* Call option valuation
capital budgeting and, 831–832
equity in a leveraged firm, 826–827
factors determining, 463
mergers and diversification and, 829–830
put-call parity, *see* Put-call parity
risky bonds and, 827–829
Oracle, 5
Order costs, 649
Order flow, 259
Organization chart, 4
illustrated, 5
operating cycle and, 644
OSI Pharmaceuticals, 381
Oversubscription privilege, 551
Over-the-counter collection, 682
Over-the-counter (OTC) markets, 19, **261**
for bonds, 224
for foreign exchange, 751
Owens Corning, 597
Owners' equity
on the balance sheet, 24
debt versus, 26–27
maximizing the value of, 11–12

P

Pacific Gas & Electric (PG&E), 558, 567
Pacific Stock Exchange, 19
Partnership, 7–8
Partnership agreement, 7
Par value, 202
Par value bond, 202
Payables period, 69
cash cycle and, 646–647
Payables turnover, 69
cash cycle and, 646
Payback period, 279–280, 300
break even and, 364
Payback rule, 278–282
advantages and disadvantages of, 282
analyzing, 280–281
calculation, 279
defining, 278–280
redeeming qualities of, 281
summary of, 281–282
Payment analysis report (PAR), 721
example of, 722
Payment history, 720
Payoff profile, 788
illustrated, 787
option, 797
illustrated, 798
risk profile compared to, 788, 789
Peer group analysis, 76–79
Pennzoil, 597
Pepsi Cola, 314
Percentage of sales approach, 102–108
balance sheet and, 104–105
capital intensity ratio, 104
dividend payout ratio, 103
income statement and, 102–103
retention ratio, 103
scenarios, 105–108
Performance evaluation, 509
Perishability, 711
Perpetuities, 174–175
Peugeot SA, 10
Philip Morris, 429
Piracy, 314n
Pixar Animation Studios, 3
Planning horizon, 97
Plowback ratio, 103
Poison pills, 860, 862
Poison put, 863
Political risk, 770
Portfolios, 420–423
betas, 432–433
diversification and, *see* Diversification
expected returns from, 420–421
market, 439
variance, 422
standard deviation and, 422–423
weighting of, 420
Portfolio weights, 420
Precautionary motive, 674
Preferred stock, 256
cost of, 500
cumulative dividends, 256
as debt in disguise, 257
money market, 691
noncumulative dividends, 256
as a perpetuity, 174–175
stated value, 256
Premium, foreign exchange, 756
Premium bond, 204
Present value (PV), 138–142
discount rate and, 139–141
determining, 143–146
evaluating investments using, 142–143
finding the number of periods and, 146–149
future versus, 142–143
of multiple cash flows, 161–164
multiple-period case, 139–142
single-period case, 138, 143–146
spreadsheets for, 147–148, 164
Present value interest factor, 139
for annuities, 166
Price appreciation, 251n
Price-earnings (PE) ratio, 71–72
Price volatility, *see* Hedging, price volatility and
Primary markets, 18, **257**
Principle of diversification, 428–**429**
Principle value, 214
Private equity, 526
Private placement, 557
Privileged subscription, 546
Processing delay, 677
accelerating collections and, 684–687
Procter and Gamble (P&G), 246, 252, 707, 851
Prodigy Services, 475
Profitability, 711
Profitability index, 297, 300
Profitability ratios, 70–71
Profit margin, 70
Pro forma financial statements, 100, 315
project cash flows and, 315–316
Project analysis and evaluation, 349–371
accounting break-even and cash flow, 363–364
break-even analysis, *see* Break-even analysis
capital rationing, 371

Project analysis and evaluation *(Continued)*
net present value, *see* Net present value estimates
operating leverage, *see* Operating leverage
sales volume and operating cash flow, 364–365
what-if analysis, *see* What-if analysis
Project cash flows, 312–330
capital spending and, 317–318
cash collection and costs, 321
depreciation and, 322–324
book value versus market value, 323–324
modified ACRS, 322–323, 324
example of, 325–330
incremental, *see* Incremental cash flows
net working capital and, 317–318, 319, 321
operating cash flow and, 317
pro forma financial statements and, 315–316
stand-alone principle, 312
total cash flow and value, 318
Promissory note, 713
Prospectus, 528
Protective covenants, 215–216
Protective put, 808
Proxy, 254–255
Proxy contest, 845
Proxy fight, 15, 254–255
Public limited companies, 9, 10
Purchase accounting method, 847
Purchasing power parity (PPP), 756–759, **757**
absolute, 757–758
relative, 758–759
Pure discount loans, 181–182
Pure play approach, 511–512
Put bond, 222, 481
Put-call parity, 807–812, **809**
alternative strategy, 808–809
continuous compounding and, 810–812
protective puts, 808
result, 809–810
Put option, 454, 796
payoffs, 458
valuation of, 816–817
cautionary note, 817–818

Q

Quaker Oats, 509
Qualcomm, 718
Quick ratio, 64–65
Quoted interest rate, 177

R

Raising capital, 525–559
early stage financing, 526–528
long-term debt, 557–558
selling securities, *see* Selling securities to the public
shelf registration, 558–559
underwriters and, *see* Underwriters
venture capital, 526–528
Rate of return, 143
Ratio analysis, 62–73
acid-test ratio, 64–65
asset management, 67–70
average collection period, 69
capital intensity ratio, 104
cash coverage ratio, 67
cash ratio, 65
current ratio, 63–64
days' sales in inventory, 67–68
days' sales in receivables, 69
debt-equity ratio, 66
dividend payout ratio, 103
Du Pont identity, 73–75
earnings per share, 71
equity multiplier, 66
financial leverage, 65–67
fixed asset turnover, 69
interval measure, 65
inventory turnover, 67–68
liquidity, 63–65
long-term debt ratio, 66
long-term solvency, 65–67
market-to-book ratio, 72–73
market value, 71–73
net working capital to total assets, 65
net working capital turnover, 69
plowback ratio, 103
price-earnings ratio, 71–72
profitability, 70–71
profit margin, 70
quick ratio, 64–65
receivables turnover, 68
retention ratio, 103
return on assets, 70, 73–75
return on equity, 70–71, 73–75
Ratio analysis *(Continued)*
reward-to-risk ratio, 435
short-term solvency, 63–65
summary of, 72, 80
times interest earned ratio, 67
total asset turnover, 69
total debt ratio, 65–66
turnover, 67–70
Raw material inventory, 724–725
Real rates, 228–229
Receipt of goods (ROG) dating, 710
Receivables. *See* also Credit
investment in, 708–709
monitoring, 721, 723
Receivables period, 69, 709
operating cycle and, 646
Receivables turnover, 68
operating cycle and, 646
Red herring, 528
Registered form, 214
Registered statement, 528–529
Regular cash dividend, 606
Regulation A, 528
Relative purchasing power parity, 758–759
basic idea, 758
currency appreciation and depreciation, 759
result, 758–759
Reorder points, 731
illustrated, 732
Reorganization, 595, 596
Republic National Bank, 207
Repurchase, 623–626
cash dividends versus, 623–624
earnings per share and, 625–626
real world considerations, 625
Repurchase agreements (repos), 691, 859–860
Required return
components of, 251–252
cost of capital versus, 494–495
Residual dividend approach, 618–620, **619**
Residual value, 887
Restocking costs, 725, 728–729, 730
Restrictive covenants, 215–216, 887
Retention ratio, 103
Return on assets (ROA), 70, 287n
Du Pont identity, 73–75
Return on equity (ROE), 70–71
Du Pont identity, 73–75
earnings per share and, 570–571
Return on investments, 382–386

Return on investments *(Continued)*
average, *see* Average returns
calculating, 385–386
dollar, 382–384
percentage, 384–386
variability of, *see* Variability of returns
Return on net worth, 71
Revenue
effects of credit policy on, 713
marginal, 359–360
Revenue anticipation notes (RANs), 691
Revenue enhancement from acquisitions, 850–851
marketing gains, 850
market power, 851
strategic benefits, 850–851
Reverse split, 629
Revolving credit agreement (revolver), 659
Reward-to-risk ratio, 435
Rho, 824
Rights offer, 529, 546–554
cash study of, 551–552
effects on shareholders, 552–553
ex-rights date, 550
holder-of-record date, 550
mechanics of, 546–547
number of rights needed to purchase a share, 547–548
puzzle of, 553–554
underwriting arrangements, 551
value of, 548–549
Risk. *See also specific types of risk*
call options and, 469–471
forecasting, 350–351
Risk and return, 415–442
announcements and news, 424–425
expected return and, 416–418, 423–424
market history and, *see* Capital market history
portfolios and, *see* Portfolios
security market line and, *see* Security market line (SML)
summary of, 441
surprises, 424–425
systematic component of, *see* Systematic risk
unequal probabilities, 417–418, 419
unexpected return, 423–424
unsystematic component of, 425–426
variance calculation, 418–419
Risk-free return, 395
Risk management, 777–801
derivative securities and, 778
forward contracts, *see* Forward contracts
futures contracts, *see* Futures contracts
hedging, *see* Hedging
option contracts, *see* Option contracts
reducing risk exposure, 783–786
risk profile and, 783
short-run, 784–785
swap contracts, *see* Swap contracts
Risk premium, 394–**395,** 415
beta coefficient and, *see* Beta coefficient, risk premium and
market, 439
projected, 417
Risk profile, 783
illustrated, 784
payoff profile compared to, 788, 789
RJR Nabisco, 254, 257, 845
Robert Morris Associates, 77–79
Rolls-Royce PLC, 10
Round-lot trading unit, 628
Royal Dutch/Shell Group, 673

S

Safety reserves, lack of, 649
Safety stock, 731
illustrated, 732
Sale and leaseback, 876
Sales and credit
one-time sale, 719
repeat business, 719–720
Sales forecast, 99–100
Sales volume and operating cash flow, 364–365
Salomon Brothers, 552
Salvage value, 887
S&P, 691
Savings and Loan (S&L) industry, 780–781
Savings Bonds, 148–149, 220
Scenario analysis, 353–354
Schwinn, 144
S corporation, 9n
Sears, 13, 53, 157, 475
Seasoned equity offering (SEO), 531
Secondary markets, 18–19, **257**
Secondary offering, 531n
Secured loans, 660–661
accounts receivable financing, 660–661
inventory loans, 661
Securities and Exchange Commission (SEC), 18, 528, 557, 558
EDGAR reports, 31
Security market line (SML), 416, 433–442, **439**
beta and the risk premium, 434–439
basic argument, 435–437
buy low, sell high, 438–439
fundamental result, 437–438
reward-to-risk ratio, 435
capital asset pricing model and, 439–441
cost of capital and, 442
cost of equity and, 497–499
market portfolios and, 439
market risk premium and, 439
Selling securities to the public, 528–531
costs of, *see* Flotation costs
dilution and, *see* Dilution
general cash offer, 529
initial public offering, *see* Initial public offering (IPO)
prospectus, 528
red herring, 528
registration statement, 528–529
Regulation A, 528
rights offer, *see* Rights offer
seasoned equity offering, 531
shelf registration and, 558–559
summary of, 531
tombstone, 529, 530
underwriters and, *see* Underwriters
value of the firm and, 541–542
Sensitivity analysis, 354–355
Service leases, 875
7-Eleven, 23
Shareholders' equity, *see* Owners' equity
Shareholder value added (SVA), 509
Share rights plans (SRPs), 860–862
Shark repellent, 863
Shelf registration, 558–559
Shell UK Ltd., 10
Shortage costs, 649–651
economic order quantity and, 728–729, 730
inventory costs and, 725
Short-run exposure to exchange rate risk, 766–767

Short-term finance and planning, 639–663
  borrowing, *see* Borrowing, short-term
  cash and, 640–641
  cash budget and, *see* Cash budget
  cash cycle and, *see* Cash cycle
  current assets and, *see* Current assets
  example of, 662–663
  investing, *see* Idle cash, investing
  net working capital and, 640–641
  operating cycle and, *see* Operating cycle
Short-term solvency ratios, 63–65
Sight draft, 713
Simple interest, 130, **131**
Simulation analysis, 355–356
Singapore Airlines, 873
Single-investor lease, 876
Sinking fund, 215
SlimFast Foods, Inc., 311
Small-issues exemption, 528
Society for Worldwide Interbank Financial Telecommunication (SWIFT), 751
Soft rationing, 371
Sole proprietorship, 7
Sources and uses of cash statement, 58
Sources of cash, 54–56
Southern Company, The, 558
SouthernEra, 298
Special dividend, 606
Specialist, 258
Specialist's post, 259–260
Speculative motive, 673–674
Spot exchange rate, 755–**756**
  determinant of, *see* Purchasing power parity (PPP)
  future, 762
Spot trade, 755–756
Spreading overhead, 851
Spreadsheet strategies
  annuity
    payments, 169
    present value, 168
  Black-Scholes call option prices, 816
  bond prices and yields, 210–211
  future value, 147–148
  internal rate of return, 291
  loan amortization, 186
  net present value, 277–278
  present value, 147–148
    with multiple cash flows, 164
Stafford loans, 185–186
Stakeholders, 16
Stand-alone principle, 312
Standard & Poor's (S&P), 216–218
Standard deviation, 396
  calculating, 398–399
  historical, 396–398, 399, 401
  portfolio diversification, 427–428
  portfolio variance, 422–423
Standard Industrial Classification (SIC) code, 76–77
  example of, 77
    capital structure, 593
Standardization, 711
Standardized financial statements, 59–62
  base-year statements, 60–61
  combined statements, 61
  common-size statements, 59–60
Standby fee, 551
Standby underwriting, 551
Standstill agreements, 859–860
Stanley Works, The, 618
Starwood Inc., 415
Stated interest rate, 177
Statement of cash flows, 35, **56**–58
  common-size, 60
  example of, 57
Statement of changes in financial position, 56–57
States of the economy, 416
Static theory of capital structure, 586–587
Steady-state float, 679n
Stern Stewart and Co., 509
Stock
  common, *see* Common stock
  payment in, for an acquisition, 857–858
    cash versus, 858
  preferred, *see* Preferred stock
Stock dividends, 626–629
  benchmark case, 628
  details on, 626
  large, 626, 627–628
  popular trading range and, 628–629
  small, 626–627
Stockholders
  cash flow to, 37, 38–39
  effects of rights offers on, 552–553
Stockholders' interests, 14–15
Stock markets, 257–264, 381, 382
  brokers, 257–258
  dealers, 257–258
Stock markets *(Continued)*
  NASDAQ, *see* NASDAQ (National Association of Securities Dealers Automated Quotation system)
  NYSE, *see* New York Stock Exchange (NYSE)
  primary, 257
  secondary, 257
Stock-out, 649
Stock repurchase, *see* Repurchase
Stock split, 626–629
  benchmark case, 628
  details on, 626
  example of, 627
  popular trading range and, 628–629
  reverse, 629
Stock valuation
  common, *see* Common stock valuation
  firm value and, 568–569
  preferred, 256
Straight bond value, 479
Straight voting, 254
Strategic asset allocation, *see* Capital budgeting
Strategic options, 476
Strike price (striking price), **454,** 796, 808
Sunk costs, 313
SunTrust, 841
SuperDOT system, 259
Supermajority amendment, 859
Surplus funds, 852–853
Surprise, 424–425
  systematic and unsystematic risks as, 425–426
Sustainable growth rate, 112–113, 115
  profit margins and, 116
Swap contracts, 793–796
  commodity, 794
  currency, 793–794
  dealer in, 794–795
  interest rate, 794
    example of, 795, 796
  swap book, 795
Swaps, 751
Swaptions, 801
Sweeteners, 477
Syndicate, 532
Synergy, 849–850
Systematic risk, 425–426, 430–433
  beta coefficient and, 431
    portfolio, 432–433

Systematic risk *(Continued)*
capital asset pricing model and, 440
diversification and, 429–430
measuring, 431
principle of, 430

T

Takeovers, 845. *See also* Mergers and acquisitions
vocabulary for, 863
Tangible assets, 23
TANSTAAFL, 313n
Target capital structures, 569
Target cash balance, 696–704
adjustment costs and, 697
basic idea, 697–698
BAT model, *see* Baumol-Allais-Tobin (BAT) model
Miller-Orr model, *see* Miller-Orr model
other factors influencing, 704
Targeted repurchase, 859
Target firm, 843
Target payout ratio, 622–**623**
Taxability premium, 235
Tax anticipation notes (TANs), 691
Taxes/taxation, 32–34
acquisitions and, 846, 852–853
asset write-ups, 853
determinants of status, 846
net operating losses, 852
surplus funds, 852–853
taxable versus tax-free, 846
unused debt capacity, 852
average versus marginal rates, 32–34
capital structure and, 590
corporate rates, 32
dividends and, 612–613
expected return and, 613
tax-exempt investors and, 615–616
double, 9
flat-rate, 33
government bonds and, 218–219
interest tax shield, 579–580
leasing and, *see* Leasing, taxes and
M & M Propositions I and II and, 579–584
operating cash flows and, 332–333
short-term securities and, 690, 691
weighted average cost of capital and, 502
Tax-oriented leases, 876
Tax Reform Act of 1986, 852n
TCI Communications, 217
Technical insolvency, 595
Tender offer, 843–844
Term loans, 557
Terms of sale, 708, 709–713
average collection period and, 712
basic form, 709–710
cash discounts, 711–712
cost of credit, 712
credit instruments, 712–713
credit period, *see* Credit period
trade discounts, 712
Term structure of interest rates, 230–233, **231**
Terra Networks, 552
Texaco, 597, 844
Texas Instruments, 298
Theta, 821–823
3M, 53
Time and costs, 30–32
Time draft, 713
Times interest earned (TIE) ratio, 67
Time-trend analysis, 76
Time value of money, 129. *See also* Future value (FV); Present value (PV)
summary of calculations, 150
Time Warner, 788
Tokyo Stock Exchange (TSE), 19
Tombstone, 529
illustrated, 530
ToPrS (trust-originated preferred securities), 257
Total asset turnover, 69
Total costs, 358
Total debt ratio, 65–66
Toyota, 59, 768
Toys "R" Us, 689
Trade acceptance, 713
Trade credit, 662, 707
Trade discounts, 712
Trading costs, 649
Trading in corporate securities, 19
Trading range, 628–629
Transaction costs
acquisitions and, 854
leasing and, 887
Transaction motive, 674
Transactions exposure, 785
Transitory price fluctuations, 784–785
Translation exposure, 768–769
Transparency, 224
Trans World Airlines (TWA), 567
Treasury bills (T-bills), 691
portfolio returns, 387–391, 395
as pure discount loans, 182
rate of return on, 649
Treasury Inflation Protection Securities (TIPS), 222, 232
Treasury notes and bonds, 218
price reporting of, 226–228
volatility in rates, 779
Treasury yield curve, 233
graph of, 234
Treynor index, 435n
Triangle arbitrage, 755
Trust deed, 214
Trust receipt, 661
Tulsa National Bank, 684
Turnover ratios, 67–70
"Two-handed lawyer" problem, 606

U

Unbiased forward rates (UFR), 762
Uncertainty reduction, 887
Uncertainty resolution, 615
Uncovered interest parity, 763
Underpricing of IPOs, 534–541, 543
around the world, 539
evidence on, 534–536
tables of, 535, 537–538
1999–2000 experience, 534
reasons for, 539–541
Underwriters, 531–533
aftermarket and, 533
best efforts, 532
choosing, 532
firm commitment, 532
Green Shoe provision, 533
gross spread, 532
lockup agreement, 533
oversubscription privilege, 551
rights offers and, 551
standby, 551
syndicate, 532
Unfunded debt, 212
Unilever, 10, 311, 351
Union Pacific Corporation, 639
Unique risks, 426, 430
United Parcel Service (UPS), 525
U.S. Department of Justice, 681
U.S. Navy, 888
Unlevered cost of capital, 580–581
Unlimited liability, 7

Unocal, 860
Unseasoned new issue, 529
Unsecured loans, 659–660
  compensating balances and, 659
    cost of, 659–660
  letter of credit, 660
  line of credit and, 659
Unsystematic risk, 426
  diversification and, 429
USAA, 222
USAir, 256
Uses of cash, 54–56
USG Corporation, 351
US Steel, 853, 856

V

VA Linux, 525, 534
Value added, 274–275
Value Line, 137, 252
Value/valuation
  bond, *see* Bond valuation
  discounted cash flow, *see* Discounted cash flow (DCF) valuation
  market versus book, 27–28, 323–234, 555–557
  of money, *see* Future value (FV); Present value (PV)
  option, *see* Option valuation
  call, *see* Call option valuation
  sources of, 351
  stock, *see* Stock valuation
Variability of returns, 396–403
  frequency distribution and, 396
  historical record, 399, 401
    using, 402
  investing in growth stocks, 402
  lesson of, 402
  normal distribution, 399–400, 401
  standard deviation and, 396–399
  variance and, 396–399
Variable costs, 356–358
Variance, 396
  calculating, 398–399
    risk and return, 418–419
Variance *(Continued)*
  historical, 396–398, 399, 401
Vega, 823
Venture capital (VC), 526–528
  choosing a capitalist, 527
  conclusion, 528
  realities of, 527
Verizon, 844
Vermeer, 850, 852
Vertical acquisition, 844
Vertical integration, 851–852
Voicestream, 53
Volvo AB, 10

W

Wachovia, 841, 844
Wall Street Journal, The, 53, 233, 406
  bond price reporting in, 224–228
  exchange rate quotations in, 753–754
  future options quotations, 798, 799
  futures contract quotations in, 791, 792
  stock option quotations in, 455–456
Wal-Mart, 5, 32, 65, 137, 628
Warrants, 477–478
  call options versus, 477–478
  earnings dilution and, 478
"Watch Cash Flow," 38–39
Weighted average cost of capital (WACC), 494, 501–509, **502**
  calculation of, 502–503
    for Eastman Chemical, 503–506
  capital structure weights, 501, 569
  flotation costs and, 513–516
  M & M Proposition and, 581–582
  optimal capital structure and, 587–588
  performance evaluation and, 509
  project costs and, 509–511
  taxes and, 502
  using the, 508
  warehouse problem and, 493, 507
Weyerhauser Co., 15
What-if analyses, 351–356
What-if analyses *(Continued)*
  getting started, 352
  scenario analysis, 353–354
  sensitivity analysis, 354–355
  simulation analysis, 355–356
White knight, 863
Whitemail, 863
Willamette Industries, 15
Winner's curse, 335
Winstar Communications, 718
Wire transfers, 684
Working capital, 6
  net, *see* Net working capital (NWC)
Working capital management, 6, 639. *See also* Short-term finance and planning
Work-in-progress inventory, 724–725
World Bank, 793
Worldcom, 415, 425
World Wrestling Federation (WWF), 349, 529, 534
  tombstone ad for, 530
Write-up effect, 846

X

Xerox, 585
Xtreme Football League (XFL), 349

Y

Yahoo, 16, 53, 245, 381
Yield to maturity (YTM), 202
  finding the, 208–211

Z

Zero-balance account, 688
Zero coupon bonds, 219–220