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Table I Future Value Interest Factors, FVIF, Compounded at k Percent for n Periods: $FVIF_{k,n} = (1+k)^n$

Number of Periods, n	Interest Rate, k																				
	0%	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	16%	18%	20%	25%	30%	35%	40%	45%	50%
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	1.0000	1.0100	1.0200	1.0300	1.0400	1.0500	1.0600	1.0700	1.0800	1.0900	1.1000	1.1200	1.1400	1.1600	1.1800	1.2000	1.2500	1.3000	1.3500	1.4000	1.4500	1.5000
2	1.0000	1.0201	1.0404	1.0609	1.0816	1.1025	1.1236	1.1449	1.1664	1.1881	1.2100	1.2544	1.2996	1.3456	1.3924	1.4400	1.5625	1.6900	1.8225	1.9600	2.1025	2.2500
3	1.0000	1.0303	1.0612	1.0927	1.1249	1.1576	1.1910	1.2250	1.2597	1.2950	1.3310	1.4049	1.4815	1.5609	1.6430	1.7280	1.9531	2.1970	2.4604	2.7440	3.0486	3.3750
4	1.0000	1.0406	1.0824	1.1255	1.1699	1.2155	1.2625	1.3108	1.3605	1.4116	1.4641	1.5735	1.6890	1.8106	1.9388	2.0736	2.4414	2.8561	3.3215	3.8416	4.4205	5.0625
5	1.0000	1.0510	1.1041	1.1593	1.2167	1.2763	1.3382	1.4026	1.4693	1.5386	1.6105	1.7623	1.9254	2.1003	2.2878	2.4883	3.0518	3.7129	4.4840	5.3782	6.4097	7.5938
6	1.0000	1.0615	1.1262	1.1941	1.2653	1.3401	1.4185	1.5007	1.5869	1.6771	1.7716	1.9738	2.1950	2.4364	2.6996	2.9860	3.8147	4.8268	6.0534	7.5295	9.2941	11.3906
7	1.0000	1.0721	1.1487	1.2299	1.3159	1.4071	1.5036	1.6058	1.7138	1.8280	1.9487	2.2107	2.5023	2.8262	3.1855	3.5832	4.7684	6.2749	8.1722	10.5414	13.4765	17.0859
8	1.0000	1.0829	1.1717	1.2668	1.3686	1.4775	1.5938	1.7182	1.8509	1.9926	2.1436	2.4760	2.8526	3.2784	3.7589	4.2998	5.9605	8.1573	11.0324	14.7579	19.5409	25.6289
9	1.0000	1.0937	1.1951	1.3048	1.4233	1.5513	1.6895	1.8385	1.9990	2.1719	2.3579	2.7731	3.2519	3.8030	4.4355	5.1598	7.4506	10.6045	14.8937	20.6610	28.3343	38.4434
10	1.0000	1.1046	1.2190	1.3439	1.4802	1.6289	1.7908	1.9672	2.1589	2.3674	2.5937	3.1058	3.7072	4.4114	5.2338	6.1917	9.3132	13.7858	20.1066	28.9255	41.0847	57.6650
11	1.0000	1.1157	1.1234	1.3842	1.5395	1.7103	1.8983	2.1049	2.3316	2.5804	2.8531	3.4785	4.2262	5.1173	6.1759	7.4301	11.6415	17.9216	27.1439	40.4957	59.5728	86.4976
12	1.0000	1.1268	1.2682	1.4258	1.6010	1.7959	2.0122	2.2522	2.5182	2.8127	3.1384	3.8960	4.8179	5.9360	7.2876	8.9161	14.5519	23.2981	36.6442	56.6939	86.3806	129.7463
13	1.0000	1.1381	1.2936	1.4685	1.6651	1.8856	2.1329	2.4098	2.7196	3.0658	3.4523	4.3635	5.4924	6.8858	8.5994	10.6993	18.1899	30.2875	49.4697	79.3715	125.2518	194.6195
14	1.0000	1.1495	1.3195	1.5126	1.7317	1.9799	2.2609	2.5785	2.9372	3.3417	3.7975	4.8871	6.2613	7.9875	10.1472	12.8392	22.7374	39.3738	66.7841	111.1201	181.6151	291.9293
15	1.0000	1.1610	1.3459	1.5580	1.8009	2.0789	2.3966	2.7590	3.1722	3.6425	4.1772	5.4736	7.1379	9.2655	11.9737	15.4070	28.4217	51.1859	90.1585	155.5681	263.3419	437.8939
16	1.0000	1.1726	1.3728	1.6047	1.8730	2.1829	2.5404	2.9522	3.4259	3.9703	4.5950	6.1304	8.1372	10.7480	14.1290	18.4884	35.5271	66.54171	21.7139	217.7953	381.8458	656.8408
17	1.0000	1.1843	1.4002	1.6528	1.9479	2.2920	2.6928	3.1588	3.7000	4.3276	5.0545	6.8660	9.2765	12.4677	16.6722	22.1861	44.4089	86.5042	164.3138	304.9135	553.6764	985.2613
18	1.0000	1.1961	1.4282	1.7024	2.0258	2.4066	2.8543	3.3799	3.9960	4.7171	5.5599	7.6900	10.5752	14.4625	19.6733	26.6233	55.5112	112.4554	221.8236	426.8789	802.8308	1477.8919
19	1.0000	1.2081	1.4568	1.7535	2.1068	2.5270	3.0256	3.6165	4.3157	5.1417	6.1159	8.6128	12.0557	16.7765	23.2144	31.9480	69.3889	146.1920	299.4619	597.63041	164.1047	2216.8378
20	1.0000	1.2202	1.4859	1.8061	2.1911	2.6533	3.2071	3.8697	4.6610	5.6044	6.7275	9.6463	13.7435	19.4608	27.3930	38.3376	86.7362	190.0496	404.2736	836.6826	1687.9518	3325.2567
25	1.0000	1.2824	1.6406	2.0938	2.6658	3.3864	4.2919	5.4274	6.8485	8.6231	10.8347	17.0001	26.4619	40.8742	62.6686	95.3962	264.698	705.641	1812.78	4499.88	10819.3	2525.2
30	1.0000	1.3478	1.8114	2.4273	3.2434	4.3219	5.7435	7.6123	10.0627	13.2677	17.4494	29.9599	50.9502	85.8499	143.371	237.376	807.794	2620.00	8128.55	24201.4	69349.0	191751
35	1.0000	1.4166	1.9999	2.8139	3.9461	5.5160	7.6861	10.6766	14.7853	20.4140	28.1024	52.7996	98.1002	180.314	327.997	590.668	2465.19	9727.86	36448.7	130161	444509	1456110
40	1.0000	1.4889	2.2080	3.2620	4.8010	7.0400	10.2857	14.9745	21.7245	31.4094	45.2593	93.0510	188.884	378.721	750.378	1469.77	7523.16	36118.9	163437	700038	2849181	11057332
45	1.0000	1.5648	2.4379	3.7816	5.8412	8.9850	13.7646	21.0025	31.9204	48.3273	72.8905	163.988	363.679	795.444	1716.68	3657.26	22958.9	134107	732858	3764971	18262495	83966617
50	1.0000	1.6446	2.6916	4.3839	7.1067	11.4674	18.4202	29.4570	46.9016	74.3575	117.391	289.002	700.233	1670.70	3927.36	9100.44	70064.9	497929	3286158	0248916	117057734	637621500

Table II Present Value Interest Factors, PVIF, Discounted at k Percent for n Periods: $PVIF_{k,n} = \frac{1}{(1+k)^n}$

Number of Periods, n	Discount Rate, k																					
	0%	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	16%	18%	20%	25%	30%	35%	40%	45%	50%
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	1.0000	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.8929	0.8772	0.8621	0.8475	0.8333	0.8000	0.7692	0.7407	0.7143	0.6897	0.6667
2	1.0000	0.9803	0.9612	0.9426	0.9246	0.9070	0.8900	0.8734	0.8573	0.8417	0.8264	0.7972	0.7695	0.7432	0.7182	0.6944	0.6400	0.5917	0.5487	0.5102	0.4756	0.4444
3	1.0000	0.9706	0.9423	0.9151	0.8890	0.8638	0.8396	0.8163	0.7938	0.7722	0.7513	0.7118	0.6750	0.6407	0.6086	0.5787	0.5120	0.4552	0.4064	0.3644	0.3280	0.2963
4	1.0000	0.9610	0.9238	0.8885	0.8548	0.8227	0.7921	0.7629	0.7350	0.7084	0.6830	0.6355	0.5921	0.5523	0.5158	0.4823	0.4096	0.3501	0.3011	0.2603	0.2262	0.1975
5	1.0000	0.9515	0.9057	0.8626	0.8219	0.7835	0.7473	0.7130	0.6806	0.6499	0.6209	0.5674	0.5194	0.4761	0.4371	0.4019	0.3277	0.2693	0.2230	0.1859	0.1560	0.1317
6	1.0000	0.9420	0.8880	0.8375	0.7903	0.7462	0.7050	0.6663	0.6302	0.5963	0.5645	0.5066	0.4556	0.4104	0.3704	0.3349	0.2621	0.2072	0.1652	0.1328	0.1076	0.0878
7	1.0000	0.9327	0.8706	0.8131	0.7599	0.7107	0.6651	0.6227	0.5835	0.5470	0.5132	0.4523	0.3996	0.3538	0.3139	0.2791	0.2097	0.1594	0.1224	0.0949	0.0742	0.0585
8	1.0000	0.9235	0.8535	0.7894	0.7307	0.6768	0.6274	0.5820	0.5403	0.5019	0.4665	0.4039	0.3506	0.3050	0.2660	0.2326	0.1678	0.1226	0.0906	0.0678	0.0512	0.0390
9	1.0000	0.9143	0.8368	0.7664	0.7026	0.6446	0.5919	0.5439	0.5002	0.4604	0.4241	0.3606	0.3075	0.2630	0.2255	0.1938	0.1342	0.0943	0.0671	0.0484	0.0353	0.0260
10	1.0000	0.9053	0.8203	0.7441	0.6756	0.6139	0.5584	0.5083	0.4632	0.4224	0.3855	0.3220	0.2697	0.2267	0.1911	0.1615	0.1074	0.0725	0.0497	0.0346	0.0243	0.0173
11	1.0000	0.8963	0.8043	0.7224	0.6496	0.5847	0.5268	0.4751	0.4289	0.3875	0.3505	0.2875	0.2366	0.1954	0.1619	0.1346	0.0859	0.0558	0.0368	0.0247	0.0168	0.0116
12	1.0000	0.8874	0.7885	0.7014	0.6246	0.5568	0.4970	0.4440	0.3971	0.3555	0.3186	0.2567	0.0276	0.1685	0.1372	0.1122	0.0687	0.0429	0.0273	0.0176	0.0116	0.0077
13	1.0000	0.8787	0.7730	0.6810	0.6006	0.5303	0.4688	0.4150	0.3677	0.3262	0.2897	0.2292	0.1821	0.1452	0.1163	0.0935	0.0550	0.0330	0.0202	0.0126	0.0080	0.0051
14	1.0000	0.8700	0.7579	0.6611	0.5775	0.5051	0.4423	0.3878	0.3405.	0.2992	0.2633	0.2046	0.1597	0.1252	0.0985	0.0779	0.0440	0.0254	0.0150	0.0090	0.0055	0.0034
15	1.0000	0.8613	0.7430	0.6419	0.5553	0.4810	0.4173	0.3624	0.3152	0.2745	0.2394	0.1827	0.1401	0.1079	0.0835	0.0649	0.0352	0.0195	0.0111	0.0064	0.0038	0.0023
16	1.0000	0.8528	0.7284	0.6232	0.5339	0.4581	0.3936	0.3387	0.2919	0.2519	0.2176	0.1631	0.1229	0.0930	0.0708	0.0541	0.0281	0.0150	0.0082	0.0046	0.0026	0.0015
17	1.0000	0.8444	0.7142	0.6050	0.5134	0.4363	0.3714	0.3166	0.2703	0.2311	0.1978	0.1456	0.1078	0.0802	0.0600	0.0451	0.0225	0.0116	0.0061	0.0033	0.0018	0.0010
18	1.0000	0.8360	0.7002	0.5874	0.4936	0.4155	0.3503	0.2959	0.2502	0.2120	0.1799	0.1300	0.0946	0.0691	0.0508	0.0376	0.0180	0.0089	0.0045	0.0023	0.0012	0.0007
19	1.0000	0.8277	0.6864	0.5703	0.4746	0.3957	0.3305	0.2765	0.2317	0.1945	0.1635	0.1161	0.0829	0.0596	0.0431	0.0313	0.0144	0.0068	0.0033	0.0017	0.0019	0.0005
20	1.0000	0.8195	0.6730	0.5537	0.4564	0.3769	0.3118	0.2584	0.2145	0.1784	0.1486	0.1037	0.0728	0.0514	0.0365	0.0261	0.0115	0.0053	0.0025	0.0012	0.0006	0.0003
25	1.0000	0.7798	0.6095	0.4776	0.3751	0.2953	0.2230	0.1842	0.1460	0.1160	0.0923	0.0588	0.0378	0.0245	0.0160	0.0105	0.0038	0.0014	0.0006	0.0002	0.0001	0.0000
30	1.0000	0.7419	0.5521	0.4120	0.3083	0.2314	0.1741	0.1314	0.0994	0.0754	0.0573	0.0334	0.0196	0.0116	0.0070	0.0042	0.0012	0.0004	0.0001	0.0000	0.0000	0.0000
35	1.0000	0.7059	0.5000	0.3554	0.2534	0.1813	0.1301	0.0937	0.0676	0.0490	0.0356	0.0189	0.0102	0.0055	0.0030	0.0017	0.0004	0.0001	0.0000	0.0000	0.0000	0.0000
40	1.0000	0.6717	0.4529	0.3066	0.2083	0.1420	0.0972	0.0668	0.0460	0.0318	0.0221	0.0107	0.0053	0.0026	0.0013	0.0007	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
45	1.0000	0.6391	0.4102	0.2644	0.1712	0.1113	0.0727	0.0476	0.0313	0.0207	0.0137	0.0061	0.0027	0.0013	0.0006	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	1.0000	0.6080	0.3715	0.2281	0.1407	0.0872	0.0543	0.0339	0.0213	0.0134	0.0085	0.0035	0.0014	0.0006	0.0003	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table III Future Value Interest Factors for an Annuity, FVIFA, Compounded at k Percent for n Periods:

$$FVIFA_{k,n} = \sum_{t=1}^{n} (1 + k)^{n-t} = \frac{(1 + k)^n - 1}{k} \quad \text{(for non-zero k)}$$

	Interest Rate, k																					
Number of Annuity Pmts., n	**0%**	**1%**	**2%**	**3%**	**4%**	**5%**	**6%**	**7%**	**8%**	**9%**	**10%**	**12%**	**14%**	**16%**	**18%**	**20%**	**25%**	**30%**	**35%**	**40%**	**45%**	**50%**
1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
2	2.0000	2.0100	2.0200	2.0300	2.0400	2.0500	2.0600	2.0700	2.0800	2.0900	2.1000	2.1200	2.1400	2.1600	2.1800	2.2000	2.2500	2.3000	2.3500	2.400	2.4500	2.5000
3	3.0000	3.0301	3.0604	3.0909	3.1216	3.1525	3.1836	3.2149	3.2464	3.2781	3.3100	3.3744	3.4396	3.5056	3.5724	3.6400	3.8125	3.9900	4.1725	4.3600	4.5525	4.7500
4	4.0000	4.0604	4.1216	4.1836	4.2465	4.3101	4.3746	4.4399	4.5061	4.5731	4.6410	4.7793	4.9211	5.0665	5.2154	5.3680	5.7656	6.1870	6.6329	7.1040	7.6011	8.1250
5	5.0000	5.1010	5.2040	5.3091	5.4163	5.5256	5.6371	5.7507	5.8666	5.9847	6.1051	6.3528	6.6101	6.8771	7.1542	7.4416	8.2070	9.0431	9.9544	10.9456	12.0216	13.1875
6	6.0000	6.1520	6.3081	6.4684	6.6330	6.8019	6.9753	7.1533	7.3359	7.5233	7.7156	8.1152	8.5355	8.9775	9.4420	9.9299	11.2588	12.7560	14.4384	16.3238	18.4314	20.7813
7	7.0000	7.2135	7.4343	7.6625	7.8983	8.1420	8.3938	8.6540	8.9228	9.2004	9.4872	10.0890	10.7305	11.4139	12.1415	12.9159	15.0735	17.5828	20.4919	23.8534	27.7255	32.1719
8	8.0000	8.2857	8.5830	8.8923	9.2142	9.5491	9.8975	10.2598	10.6366	11.0285	11.4359	12.2997	13.2328	14.2401	15.3270	16.4991	19.8419	23.8577	28.6640	34.3947	41.2019	49.2578
9	9.0000	9.3685	9.7546	10.1591	10.5828	11.0266	11.4913	11.9780	12.4876	13.0210	13.5795	14.7757	16.0853	17.5185	19.0859	20.7989	25.8023	32.0150	39.6964	49.1526	60.7428	74.8867
10	10.0000	10.4622	10.9497	11.4639	12.0061	12.5779	13.1808	13.8164	14.4866	15.1929	15.9374	17.5487	19.3373	21.3215	23.5213	25.9587	33.2529	42.6195	54.5902	69.8137	89.0771	113.330
11	11.0000	11.5668	12.1687	12.8078	13.4864	14.2068	14.9716	15.7836	16.6455	17.5603	18.5312	20.6546	23.0445	25.7329	28.7551	32.1504	42.5661	56.4053	74.6967	98.7391	130.162	170.995
12	12.0000	12.6825	13.4121	14.1920	15.0258	15.9171	16.8699	17.8885	18.9771	20.1407	21.3843	24.1331	27.2707	30.8502	34.9311	39.5805	54.2077	74.3270	101.841	139.235	189.735	257.493
13	13.0000	13.8093	14.6803	15.6178	16.6268	17.7130	18.8821	20.1406	21.4953	22.9534	24.5227	28.0291	32.0887	36.7862	42.2187	48.4966	68.7596	97.6250	138.485	195.929	276.115	387.239
14	14.0000	14.9474	15.9739	17.0863	18.2919	19.5986	21.0151	22.5505	24.2149	26.0192	27.9750	32.3926	37.5811	43.6720	50.8180	59.1959	86.9495	127.913	187.954	275.300	401.367	581.859
15	15.0000	16.0969	17.2934	18.5989	20.0236	21.5786	23.2760	25.1290	27.1521	29.3609	31.7725	37.2797	43.8424	51.6595	60.9653	72.0351	109.687	167.286	254.738	386.420	582.982	873.788
16	16.0000	17.2579	18.6393	20.1569	21.8245	23.6575	25.6725	27.8881	30.3243	33.0034	35.9497	42.7533	50.9804	60.9250	72.9390	87.4421	138.109	218.472	344.897	541.988	846.324	1311.68
17	17.0000	18.4304	20.0121	21.7616	23.6975	25.8404	28.2129	30.8402	33.7502	36.9737	40.5447	48.8837	59.1176	71.6730	87.0680	105.931	173.636	285.014	466.611	759.784	1228.17	1968.52
18	18.0000	19.6147	21.4123	23.4144	25.6454	28.1324	30.9057	33.9990	37.4502	41.3013	45.5992	55.7497	68.3941	84.1407	103.740	128.117	218.045	371.518	630.925	1064.70	1781.85	2953.78
19	19.0000	20.8109	22.8406	25.1169	27.6712	30.5390	33.7600	37.3790	41.4463	46.0185	51.1591	63.4397	78.9692	98.6032	123.414	154.740	273.556	483.973	852.748	1491.58	2584.68	4431.68
20	20.0000	22.0190	24.2974	26.8704	29.7781	33.0660	36.7856	40.9955	45.7620	51.1601	57.2750	72.0524	91.0249	115.380	146.628	186.688	342.945	630.165	1152.21	2089.21	3748.78	6648.51
25	25.0000	28.2432	32.0303	36.4593	41.6459	47.7271	54.8645	63.2490	73.1059	84.7009	98.3471	133.334	181.871	249.214	342.603	471.981	1054.79	2348.80	5176.50	11247.1990	24040.7	50500.3
30	30.0000	34.7849	40.5681	47.5754	56.0849	66.4388	79.0582	94.4608	113.283	136.308	164.494	241.333	356.787	530.312	790.948	1181.88	3227.17	8729.99	23221.6	60501.1	154107	383500
35	35.0000	41.6603	49.9945	60.4621	73.6522	90.3203	111.435	138.237	172.317	215.711	271.024	431.663	693.573	1120.71	1816.65	2948.34	9856.76	32422.9	104136	325400	987794	2912217
40	40.0000	48.8864	60.4020	75.4013	95.0255	120.800	154.762	199.635	259.057	337.882	442.593	767.091	1342.03	2360.76	4163.21	7343.86	30088.7	120393	466960	1750092	6331512	22114663
45	45.0000	56.4811	71.8927	92.7199	121.029	159.700	212.744	285.749	386.506	525.859	718.905	1358.23	2590.56	4965.27	9531.58	18281.3	91831.5	.447019	2093876	9412424	40583319	167933233
50	50.0000	64.4632	84.5794	112.797	152.667	209.348	290.336	406.529	573.770	815.084	1163.91	2400.02	4994.52	10435.6	21813.1	45497.2	280256	1659761	9389020	50622288	260128295	1275242998

Table IV Present Value Interest Factors for an Annuity, PVIFA, Discounted at k Percent for n Periods:

$$PVIFA_{k,n} = \sum_{t=1}^{n} \frac{1}{(1+k)^t} = \frac{1 - \frac{1}{(1+k)^n}}{k} = \frac{1}{k} - \frac{1}{k(1+k)^n} \quad \text{(for non-zero k)}$$

Number of Annuity Pmts., n	Discount Rate, k																									
	0%	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	25%	30%	35%	40%	45%	50%
1	1.0000	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.9009	0.8929	0.8850	0.8772	0.8696	0.8621	0.8547	0.8475	0.8403	0.8333	0.8000	0.7692	0.7407	0.7143	0.6897	0.6667
2	2.0000	1.9704	1.9416	1.9135	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591	1.7355	1.7125	1.6901	1.6681	1.6467	1.6257	1.6052	1.5852	1.5656	1.5465	1.5278	1.4400	1.3609	1.2894	1.2245	1.1653	1.1111
3	3.0000	2.9410	2.8839	2.8286	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313	2.4869	2.4437	2.4018	2.3612	2.3216	2.2832	2.2459	2.2096	2.1743	2.1399	2.1065	1.9520	1.8161	1.6959	1.5889	1.4933	1.4074
4	4.0000	3.9020	3.8077	3.7171	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397	3.1699	3.1024	3.0373	2.9745	2.9137	2.8550	2.7982	2.7432	2.6901	2.6386	2.5887	2.3616	2.1662	1.9969	1.8492	1.7195	1.6049
5	5.0000	4.8534	4.7135	4.5797	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897	3.7908	3.6959	3.6048	3.5172	3.4331	3.3522	3.2743	3.1993	3.1272	3.0576	2.9906	2.6893	2.4356	2.2200	2.0352	1.8755	1.7366
6	6.0000	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859	4.3553	4.2305	4.1114	3.9975	3.8887	3.7845	3.6847	3.5892	3.4976	3.4098	3.3255	2.9514	2.6427	2.3852	2.1680	1.9831	1.8244
7	7.0000	6.7282	6.4720	6.2303	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330	4.8684	4.7122	4.5638	4.4226	4.2883	4.1604	4.0386	3.9224	3.8115	3.7057	3.6046	3.1611	2.8021	2.5075	2.2628	2.0573	1.8829
8	8.0000	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348	5.3349	5.1461	4.9676	4.7988	4.6389	4.4873	4.3436	4.2072	4.0776	3.9544	3.8372	3.3289	2.9247	2.5982	2.3306	2.1085	1.9220
9	9.0000	8.5660	8.1622	7.7861	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952	5.7590	5.5370	5.3282	5.1317	4.9464	4.7716	4.6065	4.4506	4.3030	4.1633	4.0310	3.4631	3.0190	2.6653	2.3790	2.1438	1.9480
10	10.0000	9.4713	8.9826	8.5302	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177	6.1446	5.8892	5.6502	5.4262	5.2161	5.0188	4.8332	4.6586	4.4941	4.3389	4.1925	3.5705	3.0915	2.7150	2.4136	2.1681	1.9653
11	11.0000	10.3676	9.7868	9.2526	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052	6.4951	6.2065	5.9377	5.6869	5.4527	5.2337	5.0286	4.8364	4.6560	4.4865	4.3271	3.6564	3.1473	2.7519	2.4383	2.1849	1.9769
12	12.0000	11.2551	10.5753	9.9540	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607	6.8137	6.4924	6.1944	5.9176	5.6603	5.4206	5.1971	4.9884	4.7932	4.6105	4.4392	3.7251	3.1903	2.7792	2.4559	2.1965	1.9846
13	13.0000	12.1337	11.3484	10.6350	9.9856	9.3936	8.8527	8.3577	7.9038	7.4869	7.1034	6.7499	6.4235	6.1218	5.8424	5.5831	5.3423	5.1183	4.9095	4.7147	4.5327	3.7801	3.2233	2.7994	2.4685	2.2045	1.9897
14	14.0000	13.0037	12.1062	11.2961	10.5631	9.8986	9.2950	8.7455	8.2442	7.7862	7.3667	6.9819	6.6282	6.3025	6.0021	5.7245	5.4675	5.2293	5.0081	4.8023	4.6106	3.8241	3.2487	2.8144	2.4775	2.2100	1.9931
15	15.0000	13.8651	12.8493	11.9379	11.1184	10.3797	9.7122	9.1079	8.5595	8.0607	7.6061	7.1909	6.8109	6.4624	6.1422	5.8474	5.5755	5.3242	5.0916	4.8759	4.6755	3.8593	3.2682	2.8255	2.4839	2.2138	1.9954
16	16.0000	14.7179	13.5777	12.5611	11.6523	10.8378	10.1059	9.4466	8.8514	8.3126	7.8237	7.3792	6.9740	6.6039	6.2651	5.9542	5.6685	5.4053	5.1624	4.9377	4.7296	3.8874	3.2832	2.8337	2.4885	2.2164	1.9970
17	17.0000	15.5623	14.2919	13.1661	12.1657	11.2741	10.4773	9.7632	9.1216	8.5436	8.0216	7.5488	7.1196	6.7291	6.3729	6.0472	5.7487	5.4746	5.2223	4.9897	4.7746	3.9099	3.2948	2.8398	2.4918	2.2182	1.9980
18	18.0000	16.3983	14.9920	13.7535	12.6593	11.6896	10.8276	10.0591	9.3719	8.7556	8.2014	7.7016	7.2497	6.8399	6.4674	6.1280	5.8178	5.5339	5.2732	5.0333	4.8122	3.9279	3.3037	2.8443	2.4941	2.2195	1.9986
19	19.0000	17.2260	15.6785	14.3238	13.1339	12.0853	11.1581	10.3356	9.6036	8.9501	8.3649	7.8393	7.3658	6.9380	6.5504	6.1982	5.8775	5.5845	5.3162	5.0700	4.8435	3.9424	3.3105	2.8476	2.4958	2.2203	1.9991
20	20.0000	18.0456	16.3514	14.8775	13.5903	12.4622	11.4699	10.5940	9.8181	9.1285	8.5136	7.9633	7.4694	7.0248	6.6231	6.2593	5.9288	5.6278	5.3527	5.1009	4.8696	3.9539	3.3158	2.8501	2.4970	2.2209	1.9994
25	25.0000	22.0232	19.5235	17.4131	15.6221	14.0939	12.7834	11.6536	10.6748	9.8226	9.0770	8.4217	7.8431	7.3300	6.8729	6.4641	6.0971	5.7662	5.4669	5.1951	4.9476	3.9849	3.3286	2.8556	2.4994	2.2220	1.9999
30	30.0000	25.8077	22.3965	19.6004	17.2920	15.3725	13.7648	12.4090	11.2578	10.2737	9.4269	8.6938	8.0552	7.4957	7.0027	6.5660	6.1772	5.8294	5.5168	5.2347	4.9789	3.9950	3.3321	2.8568	2.4999	2.2222	2.0000
35	35.0000	29.4086	24.9986	21.4872	18.6646	16.3742	14.4982	12.9477	11.6546	10.5668	9.6442	8.8552	8.1755	7.5856	7.0700	6.6166	6.2153	5.8582	5.5386	5.2512	4.9915	3.9984	3.3330	2.8571	2.5000	2.2222	2.0000
40	40.0000	32.8347	27.3555	23.1148	19.7928	17.1591	15.0463	13.3317	11.9246	10.7574	9.7791	8.9511	8.2438	7.6344	7.1050	6.6418	6.2335	5.8713	5.5482	5.2582	4.9966	3.9995	3.3332	2.8571	2.5000	2.2222	2.0000
45	45.0000	36.0945	29.4902	24.5187	20.7200	17.7741	15.4558	13.6055	12.1084	10.8812	9.8628	9.0079	8.2825	7.6609	7.1232	6.6543	6.2421	5.8773	5.5523	5.2611	4.9986	3.9998	3.3333	2.8571	2.5000	2.2222	2.0000
50	50.0000	39.1961	31.4236	25.7298	21.4822	18.2559	15.7619	13.8007	12.2335	10.9617	9.9148	9.0417	8.3045	7.6752	7.1327	6.6605	6.2463	5.8801	5.5541	5.2623	4.9995	3.9999	3.3333	2.8571	2.5000	2.2222	2.0000

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Glossary

A

ABC system An inventory system in which items are classified according to their value for inventory control purposes.

absolute purchasing power parity theory Theory that claims the current exchange rate is determined by the relative prices in two countries of a similar basket of traded goods and services.

actuaries People who use applied mathematics and statistics to predict claims on insurance companies and pension funds.

additional funds needed The additional external financing required to support asset growth when forecasted assets exceed forecasted liabilities and equity.

after-tax cost of debt ($AT\ k_d$) The after-tax cost to a company of obtaining debt funds.

agency costs Costs incurred to monitor agents to reduce the conflict of interest between agents and principals.

agency problem The possibility of conflict between the interests of a firm's managers and those of the firm's owners.

agent A person who has the implied or actual authority to act on behalf of another.

aggressive working capital financing approach The use of short-term funds to finance all temporary current assets, possibly all or some permanent current assets, and perhaps some fixed assets.

American depository receipts (ADRs) Securities denominated in U.S. dollars that represent a claim on foreign currency-denominated stocks held in a trust.

amortized loan A loan that is repaid in regularly spaced, equal installments, which cover all interest and principal owed.

annuitant A person who is entitled to receive annuity payments.

annuity A series of equal cash payments made at regular time intervals.

arbitrage The process whereby equivalent assets are bought in one place and simultaneously sold in another, making a risk-free profit.

average tax rate The amount of tax owed, divided by the amount of taxable income.

B

balance sheet The financial statement that shows an economic unit's assets, liabilities, and equity at a given point in time.

banker's acceptance A security that represents a promise by a bank to pay a certain amount of money, if the original note maker doesn't pay.

bearer The owner of a security.

best efforts basis An arrangement in which the investment banking firm tries its best to sell a firm's securities for the desired price, without guarantees. If the securities must be sold for a lower price, the issuer collects less money.

beta (β) The measure of nondiversifiable risk. The stock market has a beta of 1.0. Betas higher than 1.0 indicate more nondiversifiable risk than the market, and betas lower than 1.0 indicate less. Risk-free portfolios have betas of 0.0.

bird-in-the-hand theory A theory that says that investors value a dollar of dividends more highly than a dollar of reinvested earnings because uncertainty is resolved.

board of directors A group of individuals elected by the common stockholders to oversee the management of the firm.

bond maturity date The date on which the final payment is promised by the bond issuer.

bonds Securities that promise to pay the bearer a certain amount at a time in the future and may pay interest at regular intervals over the life of the security.

book value, net worth The total amount of common stockholders' equity on a company's balance sheet.

broker A person who brings buyers and sellers together.

business risk The uncertainty a company has due to fluctuations in its operating income.

C

call premium The premium the issuer pays to call in a bond before maturity. The excess of the call price over the face value.

call provision A bond indenture provision that allows the issuer to pay off a bond before the stated maturity date at a specified price.

capital Funds supplied to a firm.

capital asset pricing model (CAPM) A financial model that can be used to calculate the appropriate required payment of return for an investment project, given its degree of risk as measured by beta (β).

capital budget A document that shows planned expenditures for major asset acquisitions items, such as equipment or plant construction.

capital budgeting The process of evaluating proposed projects.

capital gains The profit made when an asset price is higher than the price paid.

capital market The market where long-term securities are traded.

capital rationing The process whereby management sets a limit on the amount of cash available for new capital budgeting projects.

capital structure The mixture of sources of capital that a firm uses (for example, debt, preferred stock, and common stock).

cash budget A detailed budget plan that shows the cash flows expected to occur during specific time periods.

C corporations Subchapter C corporations are large corporations that are taxed separately, via the corporate payment income tax, from their owners.

chief financial officer The manager who directs and coordinates the financial activities of the firm.

clientele dividend theory The theory that says that a company should attempt to determine the dividend wants of its stockholders and maintain a consistent policy of paying stockholders what they want.

coefficient of variation The standard deviation divided by the mean. A measure of the degree of risk used to compare alternatives with possible returns of different magnitudes.

collateral Assets a borrower agrees to give to a lender if the borrower defaults on the terms of a loan.

collection policy The firm's plans for getting delinquent credit customers to pay their bills.

combined leverage The phenomenon whereby a change in sales causes net income to change by a larger percentage because of fixed operating and financial costs.

commercial paper A short-term, unsecured debt instrument issued by a large corporation or financial institution.

common stock A security that indicates ownership of a corporation.

compensating balance A specified amount that a lender requires a borrower to maintain in a non-interest-paying account during the life of a loan.

component cost of capital The cost of raising funds from a particular source, such as bondholders or common stockholders.

compound interest Interest earned on interest in addition to interest earned on the original principal.

conservative working capital financing approach The use of long-term debt and equity to finance all long-term fixed assets and permanent current assets, in addition to some part of temporary current assets.

continuous compounding A process whereby interest is earned on interest every instant of time.

contribution margin Sales price per unit minus variable cost per unit.

controller The manager who is responsible for the financial and cost accounting activities of a firm.

conversion ratio The number of shares (usually of common stock) that the holder of a convertible bond would receive if he or she exercised the conversion option.

conversion value The value of the stock that would be received if the conversion option on a convertible bond were exercised.

convertible bond A bond that may be converted, at the option of the bond's owner, into a certain amount of a different type of security issued by the company.

corporate bond A security that represents a promise by the issuing corporation to make certain payments, according to a certain schedule, to the owner of the bond.

corporation A business chartered by the state that is a separate legal entity having some, but not all, of the rights and responsibilities of a natural person.

correlation The degree to which one variable is linearly related to another.

correlation coefficient The measurement of degree of correlation, represented by the letter r. Its values range from + 1.0 (perfect positive correlation) to –1.0 (perfect negative correlation).

cost of debt (k_d) The lender's required rate of return on a company's new bonds or other instrument of indebtedness.

cost of equity from new common stock (k_n) The cost of external equity, including the costs incurred to issue new common stock.

cost of internal equity (k_s) The required rate of return on funds supplied by existing common stockholders through earnings retained.

cost of preferred stock (k_p) Investors' required rate of return on a company's new preferred stock.

credit policy Credit standards a firm has established and the credit terms it offers.

credit scoring A process by which candidates for credit are compared against indicators of credit worthiness and scored accordingly.

credit standards Requirements customers must meet in order to be granted credit.

credit unions Financial institutions owned by members who receive interest on shares purchased and who obtain loans.

cross rate An exchange rate determined by examining how each of two currencies is valued in terms of a common third currency.

cross-sectional analysis Comparing variables for different entities (such as ratio values for different companies) for the same point in time or time period.

current assets Liquid assets of an economic entity (e.g., cash, accounts receivable, inventory, etc.) usually converted into cash within one year.

current liabilities Liabilities that are coming due soon, usually within one year.

D

date of record The date on which stockholder records are checked for the purpose of determining who will receive the dividend that has been declared.

dealer A person who makes his or her living buying and selling assets.

debenture A bond that is unsecured.

declaration date The date on which the board of directors announces a dividend is to be paid.

default risk premium The extra interest lenders demand to compensate for assuming the risk that promised interest and principal payments may be made late or not at all.

deficit economic unit A government, business, or household unit with expenditures greater than its income.

degree of combined leverage (DCL) The percentage change in net income divided by the percentage change in sales.

degree of financial leverage (DFL) The percentage change in net income divided by the percentage change in operating income.

degree of operating leverage (DOL) The percentage change in operating income divided by the percentage change in sales.

depreciation basis The total value of an asset upon which depreciation expense will be calculated, a part at a time, over the life of the asset.

discounted cash flow (DCF) model A model that estimates the value of an asset by calculating the sum of the present values of all future cash flows.

discount loan A loan with terms that call for the loan interest to be deducted from the loan proceeds at the time the loan is granted.

discount rate The interest rate used when calculating a present value representing the required rate of return.

discount yield The return realized by an investor who purchases a security for less than face value and redeems it at maturity for face value.

diversification effect The effect of combining assets in a portfolio such that the fluctuations of the assets' returns tend to offset each other, reducing the overall volatility (risk) of the portfolio.

dividend reinvestment plan An arrangement offered by some corporations where cash dividends are held by the company and used to purchase additional shares of stock for the investor.

dividend yield A stock's annual dividend divided by its current market price.

dividends Payments made to stockholders at the discretion of the board of directors of the corporation.

dividends payable The liability item on a firm's balance sheet that reflects the amount of dividends declared but not yet paid.

E

economic value added (EVA) The amount of profit remaining after accounting for the return expected by the firm's investors.

effective interest rate The annual interest rate that reflects the dollar interest paid divided by the dollar obtained for use.

electronic funds transfers The act of crediting one account and simultaneously debiting another by a computer.

equity multiplier The total assets to total common stockholders' equity ratio.

euro The common currency used by the European Monetary Union countries.

excess financing The amount of excess funding available for expected asset growth when forecasted liabilities and equity exceed forecasted assets.

exchange rate The number of units of one country's currency that is needed to purchase one unit of another country's currency.

ex-dividend A characteristic of common stock such that it is trading without entitlement to an upcoming dividend.

ex-rights A characteristic of common stock such that it is trading without the entitlement to an upcoming rights offering.

externalities Positive or negative effects that will occur to existing projects if a new capital budgeting project is accepted.

F

face value, or par value, or principal The amount the bond issuer promises to pay to the investor when the bond matures. The terms *face value*, *par value*, and *principal* are often used interchangeably.

factoring The practice of selling accounts receivable to another firm.

factors Firms that buy and administer another firm's accounts receivable.

Federal Reserve System The government-sponsored entity that acts as the central bank of the United States and that examines and regulates banks and other financial institutions.

fiduciary responsibility The legal requirement that those who are managing assets owned by someone else do so in a prudent manner and in accordance with the interests of the person(s) they represent.

financial intermediaries Institutions that facilitate the exchange of cash and securities.

financial (capital) lease A lease that is generally long term and non-cancelable, with the lessee using up most of the economic value of the asset by the end of the lease's term.

financial leverage The phenomenon whereby a change in operating income causes net income to change by a larger percentage because of the presence of fixed financial costs.

financial markets Exchanges or over-the-counter mechanisms where securities are traded.

financial ratio A number that expresses the value of one financial variable relative to the value of another.

financial risk The additional volatility of a firm's net income caused by the presence of fixed financial costs.

financing cash flows Cash flows that occur as creditors are paid interest and principal, and stockholders are paid dividends.

first mortgage A mortgage bond (a bond secured by real property) that gives the holder first claim on the real property pledged as security if there is a foreclosure.

fixed assets Assets that would not normally be sold or otherwise disposed of for a long period of time.

fixed costs Costs that do not vary with the level of production.

flotation costs Fees that companies pay (to investment bankers and to others) when new securities are issued.

forward rate The exchange rate for future delivery.

future value The value money or another asset will have in the future.

future value interest factor for an annuity (FVIFA) The factor, which when multiplied by an expected annuity, gives you the sum of the future values of the annuity stream:

$$\frac{(1+k)^n \quad 1}{k}$$

future value interest factor for a single amount (FVIF) The $(1 + k)^n$ factor that is multiplied by the original value to solve for future value.

G

going concern value That value that comes from the future earnings and cash flows that can be generated by a company if it continues to operate.

H

hedge A financial arrangement used to offset or protect against negative effects of something else, such as fluctuating exchange rates.

hurdle rate The minimum rate of return that management demands from a proposed project before that project will be accepted.

I

income statement A financial statement that presents the revenues, expenses, and income of a business over a specific time period.

incremental cash flows Cash flows that will occur only if an investment is undertaken.

incremental depreciation expense The change in depreciation expense that a company will incur if a proposed capital budgeting project is accepted.

indenture The contract between the issuing corporation and the bond's purchaser.

independent projects A group of projects such that any or all could be accepted.

industry comparison The process whereby financial ratios of a firm are compared to those of similar firms to see if the firm under scrutiny compares favorably or unfavorably with the norm.

inflation premium The extra interest that compensates lenders for the expected erosion of purchasing power of funds due to inflation over the life of the loan.

initial public offering (IPO) The process whereby a private corporation issues new common stock to the general public, thus becoming a publicly traded corporation.

institutional investors Financial institutions that invest in the securities of other companies.

interest The compensation lenders demand and borrowers pay when money is lent.

interest rate parity A theory that states that the difference between the exchange rate specified for future delivery and that for current delivery equals the difference in the interest rates for securities of the same maturity.

interest rate spread The rate a bank charges for loans minus the rate it pays for deposits.

intermediation The process by which funds are channeled from surplus to deficit economic units through a financial institution.

internal rate of return (IRR) The estimated rate of return for a proposed project, given the size of the project's incremental cash flows and their timing.

international bonds Bonds that are sold in countries other than where the issuer is domiciled.

international Fisher effect A theory developed by economist Irving Fisher that claims that changes in interest rates for two countries will be offset by equal changes, in the opposite direction, in the exchange rate.

inventory financing A type of financing that uses inventory as loan collateral.

investment banking firm A firm that helps issuers sell their securities and that provides other financial services.

investment-grade bonds Bonds rated Baa3 or above by Moody's bond rating agency and BBB- or above by Standard & Poor's.

J

JIT An inventory system in which inventory items are scheduled to be delivered "just in time" to be used as needed.

junk bonds Bonds with lower than investment-grade ratings.

L

lease A contract between an asset owner (lessor) and another party who uses that asset (lessee) that allows the use of the asset for a specified period of time, specifies payment terms, and does not convey legal ownership.

lessee The party in a lease contract who uses the asset.

lessor The party in a lease contract who owns the asset.

leverage Something that creates a magnifying effect, such as when fixed operating or fixed financial costs cause a magnifying effect on the movements of operating income or net income.

leverage effect The result of one factor causing another factor to be magnified, such as when debt magnifies the return stockholders earn on their invested funds over the return on assets.

liability insurance Insurance that pays obligations that may be incurred by the insured as a result of negligence, slander, malpractice, and similar actions.

limited liability companies (LLCs) Hybrids between partnerships and corporations that are taxed like the former and have limited liability for the owners like the latter.

limited liability partnership (LLPs) Business entities that are usually formed by professionals such as doctors, lawyers, or accountants and that provide limited liability for the partners.

limited partnerships (LPs) Partnerships that include at least one partner whose liability is limited to the amount invested. They usually take a less active role in the running of the business than do general partners.

line of credit An informal arrangement between a lender and borrower wherein the lender sets a limit on the maximum amount of funds the borrower may use at any one time.

liquidation value The amount that would be received by the owners of a company that sold all its assets as market value, paid all its liabilities and preferred stock, and distributed what was left to the owners of the firm.

liquidity risk premium The extra interest lenders demand to compensate for holding a security that is not easy to sell at its fair value.

lockbox A way station (typically a post office box) at which customers may send payments to a firm.

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M

MACRs, modified accelerated cost recovery system The depreciation rules established by the Tax Reform Act of 1986 that allow owners to take accelerated depreciation with greater deductions in earlier years than in later years.

managing investment banker The head of an investment banking underwriting syndicate.

marginal cost of capital (MCC) The weighted average cost of capital for the next dollar of funds raised.

marginal tax rate The tax rate applied to the next dollar of taxable income.

market efficiency The relative ease, speed, and cost of trading securities. In an efficient market, securities can be traded easily, quickly, and at low cost. In an inefficient market, one or more of these qualities is missing.

market risk premium The additional return above the risk-free rate demanded by investors for assuming the risk of investing in the market.

market value added (MVA) The market value of the firm, debt plus equity, minus the total amount of capital invested in the firm.

maturity date The date the bearer of a security is to be paid the principal, or face value, of a security.

maturity risk premium The extra (or sometimes lesser) interest that lenders demand on longer-term securities.

mixed ratio A financial ratio that includes variables from both the income statement and the balance sheet.

moderate working capital financing approach An approach in which a firm finances temporary current assets with short-term funds and permanent current assets and fixed assets with long-term funds.

Modified Internal Rate of Return (MIRR) The estimated rate of return for a proposed project for which the projected cash flows are assumed to be reinvested at the cost of capital rate.

Modigliani and Miller dividend theory A theory developed by financial theorists Franco Modigliani and Merton Miller that says the amount of dividends paid by a firm does not affect the firm's value.

money market The market where short-term securities are traded.

mortgage bond A bond secured by real property.

multinational corporation (MNC) A corporation that has operations in more than one country.

municipal bonds Bonds issued by a state, city, county, or other nonfederal government authority, including specially created municipal authorities such as a toll road or industrial development authority.

mutually exclusive projects A group of projects that compete against each other; only one of the mutually exclusive projects may be chosen.

mutuals Institutions (e.g., savings and loans or insurance companies) that are owned by their depositors or policy holders.

N

negotiable CDs A deposit security issued by financial institutions that comes in minimum denominations of $100,000 and can be traded in the money market.

net present value (NPV) The estimated change in the value of the firm that would occur if a project is accepted.

net working capital The amount of current assets minus the amount of current liabilities of an economic unit.

nominal interest rate The rate observed in the financial marketplace that includes the real rate of interest and various premiums.

nominal risk-free rate of interest The interest rate without any premiums for the uncertainties associated with lending.

nondiversifiable risk The portion of a portfolio's total risk that cannot be eliminated by diversifying. Factors shared to a greater or lesser degree by most assets in the market, such as inflation and interest rate risk, cause nondiversifiable risk.

nonsimple project A project that has a negative initial cash flow and also has one or more negative future cash flows.

NPV profile A graph that displays how a project's net present value changes as the discount rate, or required rate of return, changes.

O

open-market operations The buying and selling of U.S. Treasury securities or foreign currencies to achieve some economic objective.

operating lease A lease that has a term substantially shorter than the useful life of the asset and is usually cancelable by the lessee.

operating leverage The effect of fixed operating costs on operating income; because of fixed costs, any change in sales results in a larger percentage change in operating income.

opportunity cost The cost of forgoing the best alternative to make a competing choice.

optimal capital budget The list of all accepted projects and the total amount of their initial cash outlays.

over-the-counter market A network of dealers around the world who purchase securities and maintain inventories of securities for sale.

P

par value The stated value of a share of common stock.

partnership An unincorporated business owned by two or more people.

payback period The expected amount of time a capital budgeting project will take to generate cash flows that cover the project's initial cash outlay.

payment date The date the transfer agent sends out a company's dividend checks.

pension fund A financial institution that takes in funds for workers, invests those funds, and then provides for a retirement benefit.

permanent current assets The minimum level of current assets maintained.

perpetuity An annuity that has an infinite maturity.

portfolio A collection of assets that are managed as a group.

preemptive right A security given by some corporations to existing stockholders that gives them the right to buy new shares of common stock at a below-market price until a specified expiration date.

present value Today's value of promised or expected future value.

present value interest factor for an annuity (PVIFA) The factor which, when multiplied by an expected annuity payment, gives you the present value of the annuity stream:

$$\frac{1 - \frac{1}{(1+k)^n}}{k}$$

present value interest factor for a single amount (PVIF) The $1/(1+k)^n$ factor that is multiplied by a given future value to solve for the present value.

primary market The market in which newly issued securities are sold to the public.

primary reserves Vault cash and deposits at the Fed that go toward meeting a bank's reserve requirements.

principal A person who authorizes an agent to act for him or her.

private corporation A corporation that does not offer its shares to the general public and that can keep its financial statements confidential.

***pro forma* financial statements** Projected financial statements.

progressive tax rate structure A tax structure under which the tax rate increases as taxable income increases, usually in a pattern of several steps.

promissory note A legal document the borrower signs indicating agreement to the terms of a loan.

proprietorship A business that is not incorporated and is owned by one person.

prospectus A disclosure document given to a potential investor when a new security is issued.

publicly traded corporations Corporations that have common stock that can be bought in the marketplace by any interested party and that must release audited financial statements to the public.

pure time value of money The value demanded by an investor to compensate for the postponement of consumption.

putable bonds Bonds that can be redeemed before the scheduled maturity date, at the option of the bondholder.

Q

quota A quantity limit imposed by one country on the amount of a given good that can be imported from another country.

R

real option A valuable characteristic of some projects where revisions to that project at a later date are possible.

real rate of interest The rate that the market offers to lenders to compensate for postponing consumption.

refunding Issuing new bonds to replace old bonds.

relative purchasing power parity theory A theory that states that as prices change in one country relative to those prices in another country, for a given traded basket of similar goods and services, the exchange rate will tend to change proportionately but in the opposite direction.

required reserve ratio The percentage of deposits that determines the amount of reserves a financial institution is required to hold.

residual income Income left over, and available to common stockholders, after all other claimants have been paid.

restrictive covenants Promises made by the issuer of a bond to the investor, to the benefit of the investor.

rights-on A characteristic of common stock such that it is trading with the entitlement to an upcoming right.

risk The potential for unexpected events to occur.

risk-adjusted discount rate (RADR) A required rate of return adjusted to compensate for the effect a project has on a firm's risk.

risk aversion A tendency to avoid risk that explains why most investors require a higher expected rate of return the more risk they assume.

risk-free rate of return The rate of return that investors demand in order to take on a project that contains no risk other than an inflation premium.

risk-return relationship The positive relationship between the risk of an investment and an investor's required rate of return.

S

sales breakeven point The level of sales that must be achieved such that operating income equals zero.

savings and loan associations (S&Ls) Financial institutions that take in deposits and make loans (primarily mortgage loans).

second mortgage A mortgage bond (a bond secured by real property) that gives the holder second claim (after the first-mortgage bond-holder) on the real property pledged as security.

secondary market The market in which previously issued securities are traded from one investor to another.

secondary reserves Marketable securities that can be readily sold to obtain cash.

secured bond A bond backed by specific assets that the investor may claim if there is a default.

security A document that establishes the bearer's claim to receive funds in the future.

self-liquidating loan A loan that is used to acquire assets that generate enough cash to pay off the loan.

senior debenture An unsecured bond having a superior claim on the earnings and assets of the issuing firm relative to other debentures.

serial payments A mode of payment in which the issuer pays off bonds according to a staggered maturity schedule.

short-term financing decisions Financial decisions relating to raising funds for a short period of time from sources such as bank loans, trade credit, and commercial paper.

signaling The message sent by managers, or inferred by investors, when a financial decision is made.

signaling dividend theory A theory that says that dividend payments often send a signal from the management of a firm to market participants.

simple project A project that has a negative initial cash flow, followed by positive cash flows only.

sinking fund A method for retiring bonds. The bond issuer makes regular contributions to a fund that the trustee uses to buy back outstanding bonds and retire them.

spot rate The exchange rate for current delivery.

stakeholder A party having an interest in a firm (for example, owners, workers, management, creditors, suppliers, customers, and the community as a whole).

standard deviation A statistic that indicates how widely dispersed actual or possible values are distributed around a mean.

stated interest rate The interest rate advertised by the lender. Depending on the terms of the loan, the stated rate may or may not be the same as the effective interest rate.

statement of retained earnings A financial statement that shows how the value of retained earnings changes from one point in time to another.

stock Certificates of ownership interest in a corporation.

stock dividend A firm sends out new shares of stock to existing stockholders and makes an accounting transfer from retained earnings to the common stock and capital in excess of par accounts of the balance sheet.

stock split A firm gives new shares of stock to existing shareholders; on the balance sheet, they decrease the par value of the common stock proportionately to the increase in the number of shares outstanding.

straight bond value The value a convertible bond would have if it did not offer the conversion option to the investor.

straight-line depreciation A depreciation rule that allows equal amounts of the cost of an asset to be allocated over the asset's life.

strengthening currency A currency that is now convertible into a larger number of units of another currency than previously.

Subchapter S corporation A small corporation whose income is taxed like a partnership.

subordinated debenture An unsecured bond having an inferior claim on the earnings and assets of the issuing firm relative to other debentures.

sunk cost A cost that must be borne whether a proposed capital budgeting project is accepted or rejected.

surplus economic unit A business, household, or government unit with income greater than its expenditures.

syndicate A temporary alliance of investment banking firms that is formed for the purpose of underwriting a new security issue.

T

target stock A class of common stock that represents a claim on a part of company.

tariff A tax imposed by one country on imports from another country.

temporary current assets The portion of current assets that fluctuates during the company's business cycle.

10-K reports An audited set of financial statements submitted annually by all public corporations to the Securities and Exchange Commission (SEC).

10-Q reports An unaudited set of financial statements submitted quarterly by all public corporations to the Securities and Exchange Commission (SEC).

terminal value The predicted value of a company's projected free cash flows at a specified future point in time from that point in time to perpetuity.

time value of money The phenomenon whereby money is valued more highly the sooner it is received.

trade credit Funds obtained by delaying payment to suppliers.

transaction cost The cost of making a transaction, usually the cost associated with purchasing or selling a security.

transfer agent A party, usually a commercial bank, that keeps track of changes in stock ownership, collects cash from a company, and pays dividends to its stockholders.

treasurer The manager responsible for financial planning, fund-raising, and allocation of money in a business.

Treasury bills Securities issued by the federal government in minimum denominations of $1,000 in maturities of three, six, or twelve months.

Treasury bonds and notes Securities issued by the federal government that make semiannual coupon interest payments and pay the face value at maturity. Treasury notes come in maturities of one to ten years. Treasury bonds come in maturities of more than ten years.

trend analysis An analysis in which something (such as a financial ratio) is examined over time to discern any changes.

trustee The party that oversees a bond issue and makes sure all the provisions set forth in the indenture are carried out.

U

uncertainty The chance, or probability, that outcomes other than what is expected will occur.

underwriting The process by which investment banking firms purchase a new security issue in its entirety and resell it to investors. The risk of the new issue is transferred from the issuing company to the investment bankers.

V

variable costs Costs that vary with the level of production.

variable-rate bonds Bonds that have periodic changes in their coupon rates, usually tied to changes in market interest rates.

W

warrant A security that gives the holder the option to buy a certain number of shares of common stock of the issuing company, at a certain price, for a specified period of time.

weakening currency A currency that is now convertible into a smaller number of units of another currency than previously.

wealth Assets minus liabilities.

weighted average cost of capital (k_a) or (WACC) The average of all the component costs of capital, weighted according to the percentage of each component in the firm's optimal capital structure.

working capital Another name for the current assets on a firm's balance sheet.

Y

yield to maturity (YTM) The investor's return on a bond, assuming that all promised interest and principal payments are made on time and the interest payments are reinvested at the YTM rate.

Z

zero-coupon bonds Bonds that pay face value at maturity and that pay no coupon interest.

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