DISCOUNTING FUTURE CASH FLOWS

As explained in earlier chapters, the present value of a future cash flow is the amount that a knowledgeable investor would pay today for the right to receive that future amount. Arriving at a present value figure depends on (1) the amount of the future cash flow, (2) the length of time that the investor must wait to receive the cash flow, and (3) the rate of return required by the investor. *Discounting* is the process by which the present value of cash flows (referred to as the **discounted cash flows**) is determined.

The use of present value tables to discount future cash flows is demonstrated in Appendix B (at the end of this text). Those who are not familiar with the concept of present value or with present value tables should read the appendix before continuing with this chapter.

For your convenience, the two present value tables presented in the appendix are repeated in this chapter. Exhibit 26–3 shows the present value of a *single lump-sum payment* of $1

Learning Objective
Evaluate capital investment proposals using (c) discounted cash flows. LO3

Exhibit 26–3

PRESENT VALUE OF $1 PAYABLE IN *n* PERIODS

Present Value of $1 Due in *n* Periods*

Number of Periods (*n*)	Discount Rate								
	1%	1½%	5%	6%	8%	10%	12%	15%	20%
1	.990	.985	.952	.943	.926	.909	.893	.870	.833
2	.980	.971	.907	.890	.857	.826	.797	.756	.694
3	.971	.956	.864	.840	.794	.751	.712	.658	.579
4	.961	.942	.823	.792	.735	.683	.636	.572	.482
5	.951	.928	.784	.747	.681	.621	.567	.497	.402
6	.942	.915	.746	.705	.630	.564	.507	.432	.335
7	.933	.901	.711	.665	.583	.513	.452	.376	.279
8	.923	.888	.677	.627	.540	.467	.404	.327	.233
9	.914	.875	.645	.592	.500	.424	.361	.284	.194
10	.905	.862	.614	.558	.463	.386	.322	.247	.162
20	.820	.742	.377	.312	.215	.149	.104	.061	.026
24	.788	.700	.310	.247	.158	.102	.066	.035	.013
36	.699	.585	.173	.123	.063	.032	.017	.007	.001

e present value of $1 is computed by the formula $p = 1/(1 + i)^n$, where p is the present value of $1, i is the discount rate, and the number of periods until the future cash flow will occur. Amounts in this table have been rounded to three decimal places are shown for a limited number of periods and discount rates. Many calculators are programmed to use this formula and can pute present values when the future amount is entered along with values for i and n.

Exhibit 26–4

PRESENT VALUE OF A $1 ANNUITY RECEIVABLE EACH PERIOD FOR *n* PERIODS

Present Value of $1 to Be Received Periodically for *n* Periods

Number of Periods (*n*)	Discount Rate								
	1%	1½%	5%	6%	8%	10%	12%	15%	20%
1	0.990	0.985	0.952	0.943	0.926	0.909	0.893	0.870	0.833
2	1.970	1.956	1.859	1.833	1.783	1.736	1.690	1.626	1.528
3	2.941	2.912	2.723	2.673	2.577	2.487	2.402	2.283	2.106
4	3.902	3.854	3.546	3.465	3.312	3.170	3.037	2.855	2.589
5	4.853	4.783	4.329	4.212	3.993	3.791	3.605	3.352	2.991
6	5.795	5.697	5.076	4.917	4.623	4.355	4.111	3.784	3.326
7	6.728	6.598	5.786	5.582	5.206	4.868	4.564	4.160	3.605
8	7.652	7.486	6.463	6.210	5.747	5.335	4.968	4.487	3.837
9	8.566	8.361	7.108	6.802	6.247	5.759	5.328	4.772	4.031
10	9.471	9.222	7.722	7.360	6.710	6.145	5.650	5.019	4.192
20	18.046	17.169	12.462	11.470	9.818	8.514	7.469	6.259	4.870
24	21.243	20.030	13.799	12.550	10.529	8.985	7.784	6.434	4.937
36	30.108	27.661	16.547	14.621	11.717	9.677	8.192	6.623	4.993