

Discounted Cash Flow Valuation Practice Problems

From the book: Self Test Problem 6.1-6.6. Question and Problems: 1-55, 57-59, 61-62, 67-71, 73-74, 76. (Same in both editions) Don't have to do all of them just an option for more practice!

1. You have a habit of drinking a cup of Starbucks coffee (\$2.95 a cup) on the way to work every morning for 30 years. If you put the money in the bank for the same period, how much would you have, assuming your account earns 5% interest compounded daily. (assume you get a coffee every day of the year)
2. You just took out a loan of \$30,000. You make monthly payments of \$385 for the next 10 years. If interest is compounded monthly what is the APR for this loan? What is the EAR?
3. Your mobile carrier offers you 24 equal payments for the new \$1000 iPhone. They are not charging you interest. Your discount rate is 8% compounded monthly. They are also offering a \$100 discount for paying cash today. Which option should you choose if you have \$1000 cash today? Why?
4. You just got to the register at JCrew after shopping for a new wardrobe. After ringing up all your items the bill is \$1,285. The cashier offers you 10% off if you open up a new credit card. The credit card has an APR of 28% (compounding is daily). You planned on making \$50 monthly payments on your credit card which has an APR of 14%. How long will it take to pay off the credit card (assuming that is the only charge) if you use your card versus opening a JCrew card. (Ignore the negative impact on your credit score.) Hint: turn the daily rate into an effective monthly rate.
5. You are meeting with HR at your new employer and they ask you how much of your salary you want to contribute to retirement. If you contribute at least 5% your employer will add 9.5% of your annual salary. Assume you will retire in 35 years, your starting salary is \$80,000 and you can earn 6.5% per year. You expect your salary to grow 3% per year. For simplicity assume everything is annual and your first contribution is in one year. How much will you have when you retire if you contribute 4% of your salary? 5%? 10%?
6. Brian, Jamie, and Jeff are negotiating new contracts for their hit radio show Overdrive on TSN 1050. They have all agreed to 3-year contracts worth a total of \$1.5 million each. Jeff decided to be paid equally over the 36-month period, at the end of the month. Jamie opted for equal quarterly payments, at the end of the quarter. Brian hired a financial advisor and got a lump-sum of \$250,000 at the beginning of each year and another \$250,000 at the end of each year.
 - (a) What is the present value of each contract if the discount rate is 10%. Jeff's interest is compounded monthly, Jamie's is quarterly, and Brian's is annually.
 - (b) What if Jeff and Jamie were paid at the beginning of the period?

Answers to Textbook

11th Edition

- 1) \$2,779.30; \$2,323.27, \$2,054.62 2) x:\$30,377.10; \$21,090.41 y=\$29,007.49; \$22,459.44
- 3) \$6,278.76; \$6,543.12; \$7,804.09 4) \$53,417.37; \$82,754.63; \$90,507.16; \$91,666.67
- 5) \$3,861.62 6) \$298,803.87 7) \$221,439.14; \$1,631,984.09 8) \$2,929.42 9) \$12,358.24
- 10) \$784,313.73 11) 6.15% 12) 7.19%; 18.39%; 13.88%; 10.52%
- 13) 12.04%; 11.12%; 9.50%; 7.60% 14) 13.13%; 13.10% 15) 15.28% 16) \$8,958.68
- 17) \$9,785.28; \$13,678.82; \$26,730.02 18) \$32,280.21 19) 384%; 2,698.25%
- 20) \$1,529.58; 5.96% 21) 52.16 22) 313,916,515.69%; 1,733.33%
- 23) 0.65%; 7.81%; 8.10% 24) \$1,017,219.57 25) \$971,435.17 26) \$33,945.97
- 27) \$2,381.12 28) \$7,317.47 29) 5.76% 30) 6.07%; 2.99%; 0.99% 31) \$692.18
- 32) \$13,287.70 33) \$1.09; \$1.19 34) \$135.70; \$397.39; \$1,233.80 35) 31.61%
- 36) \$139,594.37; \$139,120.53 37) \$24,148,286.47 38) \$2,780,815.78
- 39) \$53,275.17; \$70,451.80; \$41,873.60 40) 82.31 41) 9.06% 42) \$305,385.86
- 43) \$1,938.19 44) \$23,656,191.50 45) 6.32%; 6.51% 46) \$4,591.04; 14.39%
- 47) \$18,336.13 48) \$131,499.83 49) \$116,406.70 50) \$95,733.60 51) 29.18%; 33.41%
- 52) \$41,721.62; \$35,571.70; \$28,003.99 53) \$63,251.44; \$68,248.30; \$92,507.64; \$99,815.75
- 54) \$1,320.27 55) \$3,024.22; \$14,813.11 57) \$3,362.78 58) \$16,616.51 vs \$16,122.75 and \$18,409.13
- 59) \$1,597,735.62 61) \$476,773.21 62) 10.20% 67) 32.66%; 38.02%
- 68) \$11,776.01; \$146,129.04; \$4,631.63 69) 45.10; 43.28 70) \$184,626.72 71) \$1,681,933.48
- 73) 13.85% 74) \$156,100.60; \$122,796.31 76) 21.32%

12th Edition

- 1) \$2,453.95; \$2,039.46; \$1,796.14 2) x:\$27,145.49; y:\$26,409.81; x:\$18,846.75; y:\$20,448.15
- 3) \$5,632.73; \$5,868.44; \$6,991.72 4) \$42,248.28; \$65,451.39; \$71,582.94; \$72,500.00
- 5) \$3,976.78 6) \$252,415.91 7) \$249,119.03; \$1,835,982.10 8) \$3,474.39 9) \$18,193.96
- 10) \$744,680.85 11) 4.38% 12) 9.31%; 17.23%; 12.75%; 11.63% 13) 10.81%; 18.03%; 9.99%; 8.07%
- 14) 13.92%; 13.85% 15) 15.79% 16) \$12,556.37 17) \$9,745.03; \$14,610.09; \$32,839.18 18) \$32,529.18
- 19) 324%; 1,660.53% 20) \$1,602.37; 5.33% 21) 56.83 22) 1,733.33%; 313,916,515.69% 23) 6.12%; 6.30% 24) \$1,073,731.76 25) \$1,025,403.79 26) \$38,126.53 27) \$2,638.87 28) \$7,143.77 29) 5.07% 30) 5.64%; 2.78%; .92% 31) \$793.69 32) \$11,379.01 33) \$1.08; \$1.17 34) \$173.18; \$471.52; \$1,368.97
- 35) 31.61% 36) \$158,206.95; \$157,733.11 37) \$25,280,038.83 38) \$3,058,897.35 39) \$55,208.02; \$70,604.52; \$44,486.55 40) 69.71 41) 6.50% 42) \$343,996.22 43) \$2,301.84 44) \$21,624,467.72 44) \$21,624,467.72 45) 6.11%; 6.28% 46) \$3,815.99; 2.14% 47) \$24,822.33 48) \$151,596.13 49) \$132,280.34
- 50) \$84,121.21 51) 30.20%; 34.75% 52) \$34,670.08; \$29,559.58; \$23,270.92 53) \$55,650.35; \$59,434.57; \$77,325.75; \$82,583.90 54) \$1,103.54 55) \$3,203.43; \$15,690.92 57) \$2,860.42 58) \$20,899.86 vs \$19,601.94 and \$26,446.80 59) \$1,503,434.07 61) \$482,680.53 62) 12.04% 67) 34.28%; 40.21% 68) \$3,891,407.12 69) 63.95; 61.76 70) \$328,996.36 71) \$2,026,945.47 73) 9.53% 74) \$178,442.82; \$144,645.85
- 76) 10.78%

Answer to above problems

- 1) \$ 74,968.26
- 2) 9.31%; 9.76%
- 3) \$921.27
- 4) 30.76; 33.84
- 5) \$571,281.60; \$2,070,895.77 \$2,784,997.76
- 6) a) \$1,305,597; \$1,282,220; \$1,291,301.48 b) \$1,314,276.09; \$1,302,062.67