Chapter 8, Problem 12
Shrinking Stomach: Integrated Solutoin
(DCF, DTA, and ROA)

Input values		
Discount rate		8%
Clinical trials duration		2 years
Clinical trials cost		$20,000,000
Probability of success with clinical trials		0.7
FDA approval process duration		1 year
FDA approval process cost		$10,000,000
Probability of success with FDA approval		0.8
ROV at launch (end of FDA process)		$30,000,000
FDA Process Phase		
Project payoff at the end of Year 3	0.9($25,000,000) + 0.1($0)	$24,000,000
PV at the end of Year 2	$22,500,000/(1+0.08)	$22,222,222
Less FDA phase cost		-$10,000,000
Project NPV at the end of Year 2	$20,833,333 - $5,000,000	$12,222,222
Clinical Trials Phase		
Project payoff at the end of Year 2	0.8($15,833,333) + 0.2($0)	$8,555,556
PV at Year 0	$12,666,667/(1+0.08)^2	$7,335,010
Less clinical trial phase cost		-$20,000,000
Project NPV at Year 0	$10,859,625-$10,000,000	($12,664,990)

INPUT VALUES		
Discount rate	5%	
Clinical Trial Phase Duration	2 years	
Clinical Trial Phase cost	$10,000,000	
Probability of success	0.8	
FDA Approval Phase Duration	1 year	
FDA Approval Phase cost	$5,000,000	
Probability of success	0.9	
Payoff at end of FDA Phase	$10,000,000	
FDA Approval Phase		
Project payoff at the end of Year 3		$9,000,000
PV at the end of Year 1		$8,163,265
Less FDA phase cost		-$5,000,000
Project NPV at the end of Year 1		$3,163,265
Clinical Trial Phase		
Project payoff at the end of Year 1		$2,530,612
PV at Year 0		$2,410,107
Less clinical trial phase cost		-$10,000,000
Project NPV at Year 0		($7,589,893)