LSE Summer School
FM250 – Finance

Classwork 1: Net Present Value

Question 1

NPV = –$1,300,000 + ($1,500,000/1.10) = +$63,636

Since the NPV is positive, you would construct the motel.

Question 2

Investment	NPV	Return
(1)	$-10{,}000+\frac{18{,}000}{1.20}=\$5{,}000$	$\frac{18{,}000-10{,}000}{10{,}000}=0.80=80.0\%$
(2)	$-5{,}000+\frac{9{,}000}{1.20}=\$2{,}500$	$\frac{9{,}000-5{,}000}{5{,}000}=0.80=80.0\%$
(3)	$-5{,}000+\frac{5{,}700}{1.20}=-\$250$	$\frac{5{,}700-5{,}000}{5{,}000}=0.14=14.0\%$
(4)	$-2{,}000+\frac{4{,}000}{1.20}=\$1{,}333.33$	$\frac{4{,}000-2{,}000}{2{,}000}=1.00=100.0\%$

Investment 1 since it has the highest NPV and maximizes shareholders' wealth.

Question 3

(a) Expected cash flow = (€8 million + €12 million + €16 million)/3 = €12 million

(b) Expected rate of return = (€12 million/€8 million) – 1 = 0.50 = 50%

(c) Expected cash flow = (€8 + €12 + €16)/3 = €12

Expected rate of return = (€12/€10) – 1 = 0.20 = 20%

The market value of the SBUX stores is the same as the payoff from one million shares of the stock market index in each state of the world economy. Therefore, the risk of these two cash flows is the same.

(d) NPV = –€8,000,000 + (€12,000,000/1.20) = +€2,000,000

The project is a good investment because the NPV is positive. Investors would be prepared to pay as much as €10,000,000 for the project.

Question 4

a. PV = $100,000

b. PV = $180,000/$1.12^5$ = $102,137

c. PV = $11,400/0.12 = $95,000

d. $PV=\$19{,}000 \times \left[\frac{1}{0.12} - \frac{1}{0.12 \times (1.12)^{10}} \right] = \$107{,}354$