1. Ferguson purchased 18 shares of Manchester Ltd., for ₹ 1510 per share on 1/1/2008, during the time span of 2.5 years. Manchester Ltd., paid following dividends per share 2008 - ₹ 120, 2009 - ₹ 170, 2010 - ₹ 230. Ferguson sold the shares on 30-6-2010 for ₹ 2750 per share, find out the holding period returns earned by Ferguson [ Ans: 116.56% ]

HPR = ((120+170+230)+(2750-1510))/1510\*100) = 116.56%

1. Calculate expected returns from the following information for GEC Ltd.

|  |  |
| --- | --- |
| Month | Returns |
| April | 0.085 |
| May | -0.15 |
| June | -0.295 |
| July | 0.1675 |
| August | -0.1575 |
| September | -0.1975 |
| October | -0.1475 |
| November | 0.67 |
| December | 0.445 |
| January | 0.4775 |
| February | -0.1775 |
| March | -0.1375 |

[Ans: 4.85%]

Arithmetic mean = 0.5825/12 = 0.0485\*100 = 4.85%

1. Investor’s assessment of return on a share of X Ltd. under three different situations is as follows:

|  |  |  |
| --- | --- | --- |
| Economic situation | Chance (P) | Return (%) |
| 1 | 0.20 | 30 |
| 2 | 0.60 | 20 |
| 3 | 0.20 | 30 |

Calculate the expected rate of return, variance and standard deviation. [Ans: E(R)=20% σ = 6.32%]

1. The current price of stock ‘M’ is ₹ 210. The future prices with probabilities are given below:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Future Prices (₹) | 178.50 | 199.50 | 252 | 283.50 | 315 |
| Probability | 0.15 | 0.25 | 0.30 | 0.2 | 0.1 |

Assuming that the company will not pay any dividend you are required to find out expected returns and standard deviation of the stock. [Return = 14.50%  σ =21.09%]

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Current Price** | **210** |  |  |  |  |  |  |
| **Future Prices** | 178.5 | 199.5 | 252 | 283.5 | 315 |  |  |
| **Return (r )** | **-15** | **-5** | **20** | **35** | **50** |  |  |
| **Probability (P)** | 0.15 | 0.25 | 0.3 | 0.2 | 0.1 |  |  |
| **pR** | -2.25 | -1.25 | 6 | 7 | 5 | **14.5** | **Exp Ret** |
| **R-Er** | -29.5 | -19.5 | 5.5 | 20.5 | 35.5 |  |  |
| **(R-Er)^2** | 870.25 | 380.25 | 30.25 | 420.25 | 1260.25 |  |  |
| **p\*(R-Er)^2** | 130.5375 | 95.0625 | 9.075 | 84.05 | 126.025 | **444.75** | **Variance** |
|  |  |  |  |  |  | **21.0891** | **SD** |

1. The stock of Box Limited performs well relative to the other stocks during recessionary periods. The stock of Cox Limited, on the other hand, does well during growth periods. Both the stocks are currently selling for Rs. 100 per share. You assess the rupee return (dividend plus price) of these stocks for the next year as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| Economic condition | Probability | Return on Box’s stock | Return on Cox’s stock |
| High growth | 0.3 | 100 | 150 |
| Low growth | 0.4 | 110 | 130 |
| Stagnation | 0.2 | 120 | 90 |
| Recession | 0.1 | 140 | 60 |

Calculate the expected return and standard deviation of investing:

(a) Rs. 1000 in the equity stock of Box Limited [Ans: E(R)=1120 and SD = 116.6]

(b) Rs. 1000 in the equity stock of Cox Limited [Ans: E(R)=1210 and SD = 291.4]

(c) Rs. 500 each in the equity stock of Box Limited and Cox Limited.[Ans: E(R) = 1165 and SD = 89.6]

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Box ' s stock** |  | |  | |  |  |  |  |  |
| **Economic situation** | **Chance (P)** | | **Return (%)** | | **Overall Return** | **pR** | **Overall R-Er** | **(R-Er)^2** | **p\*(R-Er)^2** |
| High Growth | 0.3 | | 100 | | 1000 | 300 | -120 | 14400 | 4320 |
| Low Growth | 0.4 | | 110 | | 1100 | 440 | -20 | 400 | 160 |
| Stagnation | 0.2 | | 120 | | 1200 | 240 | 80 | 6400 | 1280 |
| Recession | 0.1 | | 140 | | 1400 | 140 | 280 | 78400 | 7840 |
|  |  | |  | | **Er =** | 1120 |  | **Var =** | 13600 |
|  |  | |  | |  |  |  |  |  |
| **Expected (Er)** | **1120** | |  | |  |  |  |  |  |
| **Variance (Var)** | **13600** | |  | |  |  |  |  |  |
| **STD Dev (SD)** | **116.62** | |  | |  |  |  |  |  |
|  |  | |  | |  |  |  |  |  |
| **Cox's stock** |  | |  | |  |  |  |  |  |
| **Economic situation** | **Chance (P)** | | **Return (%)** | | **Overall Return** | **pR** | **Overall R-Er** | **(R-Er)^2** | **p\*(R-Er)^2** |
| High Growth | 0.3 | | 150 | | 1500 | 450 | 290 | 84100 | 25230 |
| Low Growth | 0.4 | | 130 | | 1300 | 520 | 90 | 8100 | 3240 |
| Stagnation | 0.2 | | 90 | | 900 | 180 | -310 | 96100 | 19220 |
| Recession | 0.1 | | 60 | | 600 | 60 | -610 | 372100 | 37210 |
|  |  | |  | | **Er =** | 1210 |  | **Var =** | 84900 |
|  |  | |  | |  |  |  |  |  |
| **Expected (Er)** | **1210** | |  | |  |  |  |  |  |
| **Variance (Var)** | **84900** | |  | |  |  |  |  |  |
| **STD Dev (SD)** | **291.38** | |  | |  |  |  |  |  |
|  |  | |  | |  |  |  |  |  |
| **If 500 in Box & 500 in Cox stock invested** | | | | |  |  |  |  |  |
|  | |  | |  |  |  |  |  |  |
| **Economic situation** | | **Chance (P)** | | **Overall Return** | **pR** | **Overall R-Er** | **(R-Er)^2** | **p\*(R-Er)^2** |  |
| High Growth | | 0.3 | | 1250 | 375 | 85 | 7225 | 2167.5 |  |
| Low Growth | | 0.4 | | 1200 | 480 | 35 | 1225 | 490 |  |
| Stagnation | | 0.2 | | 1050 | 210 | -115 | 13225 | 2645 |  |
| Recession | | 0.1 | | 1000 | 100 | -165 | 27225 | 2722.5 |  |
|  | |  | | **Er =** | 1165 |  | **Var =** | 8025 |  |
|  | |  | |  |  |  |  |  |  |
| **Expected (Er) =** | | **1165** | |  |  |  |  |  |  |
| **Variance (Var) =** | | **8025** | |  |  |  |  |  |  |
| **STD Dev (SD) =** | | **89.58** | |  |  |  |  |  |  |
|  | |  | |  |  |  |  |  |  |