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**REPORT ASSIGNMENT**

*for*

**5 stock ANALYSIS**

*Submitted by*

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***Data Interpreted From The Excel Sheets***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **HDFC** | **Adani green** | **BPCL** | **ITC** | **Yesbank** | **Index**  **(Nift-50)** |
| **Returns( in D)** | **0.05%** | **0.17%** | **0.24%** | **-0.02%** | **-0.64%** | **0.04%** |
| **standard deviation** | **1.55%** | **3.49%** | **2.38%** | **1.30%** | **1333.16%** | **0.92%** |
| **Variance** | **0.02%** | **0.12%** | **0.06%** | **0.02%** | **0.28%** | **0.01%** |
| **Covariance** | **0.0001** | **0.000121** | **1E-04** | **6.59766E-05** | **0.000136486** |  |
| **Beta/slope** | **1.17319** | **1.412805** | **1.381** | **0.771333704** | **1.595662002** |  |
| **alpha(intercept)** | **2.6E-05** | **0.001163** | **0.002** | **-0.00053088** | **-0.00702305** |  |
| **Systematic risk** | **0.01085** | **0.013066** | **0.013** | **0.007133723** | **0.014757569** |  |
| **Unsystematic risk** | **0.0047** | **0.021801** | **0.011** | **0.005896649** | **13.31685285** |  |
| **r (coeff of correlation)** | **0.69819** | **0.374743** | **0.537** | **0.547468869** | **0.001106961** |  |

We are using security market line and Risk-return ratio for evaluating the securities. Security market line is generally used by the investors in evaluation of a security for inclusion in an investment portfolio in terms of whether the security offers a favourable expected return against its level of risk. When the security is plotted on the SML chart, if it appears above the SML, it is considered undervalued because the position on the chart indicates that the security offers a greater return against its inherent risk. Conversely, if the security plots below the SML, it is considered overvalued in price because the expected return does not overcome the inherent risk.

Therefore from all this analysis we have concluded that, as BPCL, ADANI GREEN and HDFC appears above the SML, it mean these security are undervalued. And these three security offers a greater return against its inherent risk. And conversely ITC and YESBANK under overvalued in pricing stock.

Risk-return’s ratio is also known as reward-to-volatility ratio. It is used to help the investor understand the return on investment compared to risk. Risk-return ratio of BPCL stock is 0.080 which is greater then other stock. Second highest risk-return ratio of Adani green is .08 and third highest risk-return ratio is hdfc 0.012 . Hence 3 stock perform very well( BPCL ,HDFC and ADANI GREEN ),they give Better risk reward ratio. So we will take Position on these stock.

# Analysing the optimal porfolio

Now we are evaluating tolat risk and total return of our portfolio by allocating equal weight of each stock in our portfolio, but now, the problem in allocating equal weight to each stock is that we are not able to obtain the maximum return corresponding to risk(optimal porfolio.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Return(Y)** | **W1** | **W2** | **W3** | **W4** | **W4** | **W5** |
| **stock 1( Adani green)** | 44.00% | variance | stock 1 | stock 2 | stock 3 | stock 4 | stock 5 |
| **stock 2( Hdfc)** | 12.85% | stock 1 | 0.001216 | 9.63E-05 | 0.000110429 | 9.13857E-05 | 0.000477 |
| **stock 3 (BPCL)** | 60.27% | stock 2 | 9.63E-05 | 0.000241 | 9.73807E-05 | 8.11258E-05 | 9.18E-05 |
| **stock 4 (ITC )** | -5.36% | stock 3 | 0.00011 | 9.74E-05 | 0.000565161 | 8.94516E-05 | 0.000169 |
| **stock 5( Yesbank)** | -160.39% | stock 4 | 9.14E-05 | 8.11E-05 | 8.94516E-05 | 0.000169791 | 0.000134 |
|  |  | stock 5 | 0.000477 | 9.18E-05 | 0.000168767 | 0.000133571 | 0.002799 |

|  |  |  |
| --- | --- | --- |
|  | **Equally-Weighted Portfolio** |  |
|  |  |  |
|  |  | **Weights** |
| **ADANI GREEN** | **stock 1(w1)** | **0.2** |
| **HDFC** | **stock 2 (w2** | **0.2** |
| **BPCL** | **stock 3 ( w3)** | **0.2** |
| **ITC** | **stock 4 (w4)** | **0.2** |
| **YESBANK** | **stock 5 (w5)** | **0.2** |
|  | **Sum of weight** | **1** |
|  |  |  |
|  |  |  |
|  | **Expected Return(Y)** | **-9.72%** |
|  | **Standard deviation** | **1.77%** |

From the above tables we concluded that when we have given equal weight of each stock then our portfolio reture is coming negative 9.72%(Year) And standard deviation 1.77%, so now we are using the “The Markowitz Portfolio Optimization model” where we maximized Risk-return ratio (Rs-Rf)/risk By changing different weight(Wi) of particular stock .so we will get maximum return corresponding to risk, that is our optimal portfolio

**NOTE** -> maximum value of the risk-return ratio calculated by changing weight of stock with the help of excel solver tool for getting optimal portfolio

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Optimal Risky Portfolio** |  |  |  |  |
|  |  |  |  |  |
|  | **Weight** |  |  |  |
| **stock 1 (Adani green ) w1** | **0.129309** |  |  |  |
| **stock 2(HDFC) w2** | **0** |  |  |  |
| **stock 3(BPCL) w3** | **0.870691** |  |  |  |
| **stock 4(ITC) w4** | **0** |  |  |  |
| **stock 5(YESBANK) w5** | **0** | **Risk-free return** |  | **6.20%** |
| **Sum of weight** | **1** |  |  |  |
|  |  |  |  |  |
| **Expected Return(Y)** | **58.17%** |  |  |  |
| **std deviation** | **2.18%** |  |  |  |
| **Risk-return Ratio** | **23.87812** |  |  |  |
|  |  | **If we take risk aversion 10** |  |  |
| **y\*** | **109.717** | **Investor risk aversion** |  | **10.00** |

Where y\* is the proportion of the portfolio invested in the risky portfolio If we take BPCL and Adani green accounding to giving weight which show above table .we will get maximum Return with minimum Risk.