

In [4]:

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import statistics
import math
import matplotlib.pyplot as plt
import pandas as pd

filepath1=r"nse_index.csv"
b = pd.read_csv(filepath1)
filepath2=r"bse_index.csv"
a = pd.read_csv(filepath2)
nse_ret,bse_ret=[],[]

for i in range(59):
    nse_ret.append( (b.loc[i+1,'nse_index']-b.loc[i,'nse_index'])/b.loc[i,'nse_index'] )
    bse_ret.append( (a.loc[i+1,'bse_index']-a.loc[i,'bse_index'])/a.loc[i,'bse_index'] )
var_nseret,var_bseret=statistics.variance(nse_ret),statistics.variance(bse_ret)
sd_nse,sd_bse=math.sqrt(var_nseret),math.sqrt(var_bseret)
nse_meanret=(sum(nse_ret)/59)*12
bse_meanret=(sum(bse_ret)/59)*12

def main(type):
    s=['bse','nse','non_nse']
    t=['bsedata1.csv','nsedata1.csv','nse_non_index_data1.csv']
    if type==0:
        filepath=r"bsedata1.csv"
    if type==1:
        filepath=r"nsedata1.csv"
    if type==2:
        filepath=r"nse_non_index_data1.csv"
    print('\nAnalysis of',s[type],'stocks:\n')
    defcon1 = pd.read_csv(filepath)
    stocks=[]
    m=0
    for col in defcon1.columns:
        if m>0:
            stocks.append(col)
        m+=1
    n=len(stocks)
    returnn,betaa=[],[]
    for i in range(n):
        print("Name of the stock :",stocks[i])
        temp,tempret=[],[]
        for j in range(60):
            temp.append( defcon1.loc[j,stocks[i]])
            if j>0:
                tempret.append( (temp[j]-temp[j-1])/temp[j-1] )

    if type==1 or type==2:
        aa=sum(nse_ret)/len(nse_ret)
    else :
        aa=sum(bse_ret)/len(bse_ret)
    bb,c=sum(tempret)/len(tempret),0
    if type==1 or type==2:
        for k in range(len(tempret)):
            c+=(tempret[k]-bb)*(nse_ret[k]-aa)
        c=c/(len(tempret))
        c=c/var_nseret
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beta=c
betaa.append(beta)
st_ret=bb*12
returnn.append(st_ret)
res=st_ret-(0.1+(nse_meanret-0.1)*beta)
if res>0:
    print("The above mentioned stock is undervalued")
elif res<0:
    print("The above mentioned stock is overvalued")
elif res==0:
    print("The above mentioned stock lies on the Sml")
else :
    for k in range(len(tempret)):
        c+=(tempret[k]-bb)*(bse_ret[k]-aa)
    c=c/(len(tempret))
    c=c/var_bseret
    beta=c
    st_ret=bb*12
    betaa.append(beta)
    returnn.append(st_ret)
    res=st_ret-(0.1+(bse_meanret-0.1)*beta)
    if res>0:
        print("The above mentioned stock is undervalued")
        print(" ")
    elif res<0:
        print("The above mentioned stock is overvalued")
        print(" ")
    elif res==0:
        print("The above mentioned stock lies on the sml")
        print(" ")
print('\n\n')
print('Security Market Line')
bet,rett=[],[]
if type==1 or type==2:
    mark=nse_meanret
    mag='NSE'
else:
    mark=bse_meanret
    mag='BSE'
for hg in range(80):
    bet.append(0.05*hg)
    rett.append(0.1+bet[hg]*(mark-0.1))
plt.plot(bet,rett)
plt.scatter(betaa,returnn)
for hj in range(10):
    plt.annotate(stocks[hj],(betaa[hj],returnn[hj]))

plt.xlabel('Beta')
plt.ylabel('Return')
plt.show()
print("The chosen Market portfolio is :",mag)
print('\n\n','*****','\n\n')

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main(0)
main(1)
main(2)

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Analysis of bse stocks:

Name of the stock : Ongc

The above mentioned stock is overvalued

Name of the stock : JindalSteels

The above mentioned stock is overvalued

Name of the stock : Black rock

The above mentioned stock is overvalued

Name of the stock : Maruti Suzuki India Limited

The above mentioned stock is undervalued

Name of the stock : Apple Inc.

The above mentioned stock is undervalued

Name of the stock : Havells

The above mentioned stock is undervalued

Name of the stock : Reliance

The above mentioned stock is undervalued

Name of the stock : BombayDyeing

The above mentioned stock is undervalued

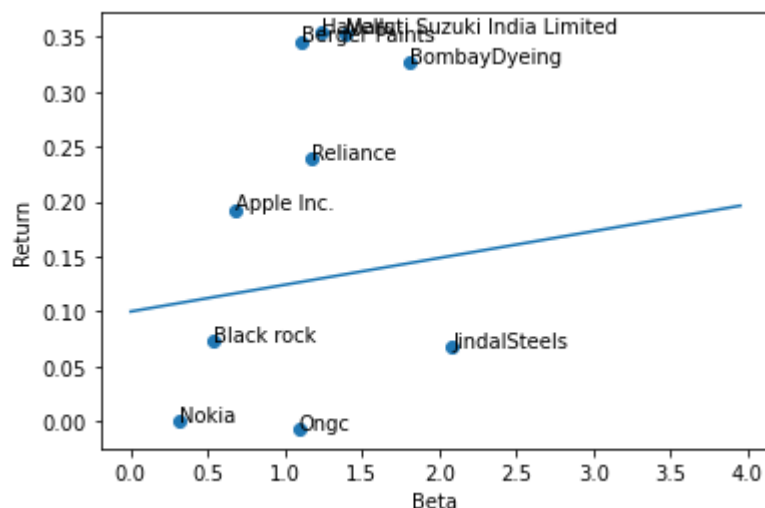
Name of the stock : Berger Paints

The above mentioned stock is undervalued

Name of the stock : Nokia

The above mentioned stock is overvalued

Security Market Line

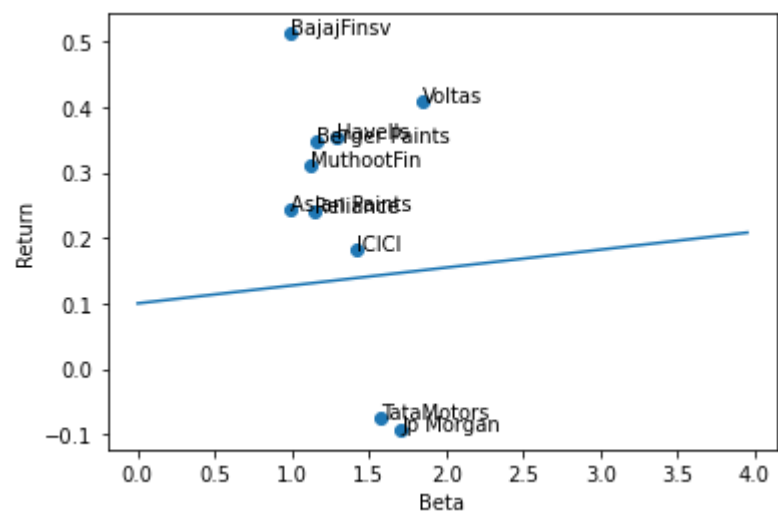


The chosen Market portfolio is : BSE

Analysis of nse stocks:

Name of the stock : ICICI
The above mentioned stock is undervalued
Name of the stock : TataMotors
The above mentioned stock is overvalued
Name of the stock : Jp Morgan
The above mentioned stock is overvalued
Name of the stock : Voltas
The above mentioned stock is undervalued
Name of the stock : BajajFinsv
The above mentioned stock is undervalued
Name of the stock : Havells
The above mentioned stock is undervalued
Name of the stock : Reliance
The above mentioned stock is undervalued
Name of the stock : Asian Paints
The above mentioned stock is undervalued
Name of the stock : Berger Paints
The above mentioned stock is undervalued
Name of the stock : MuthootFin
The above mentioned stock is undervalued

Security Market Line

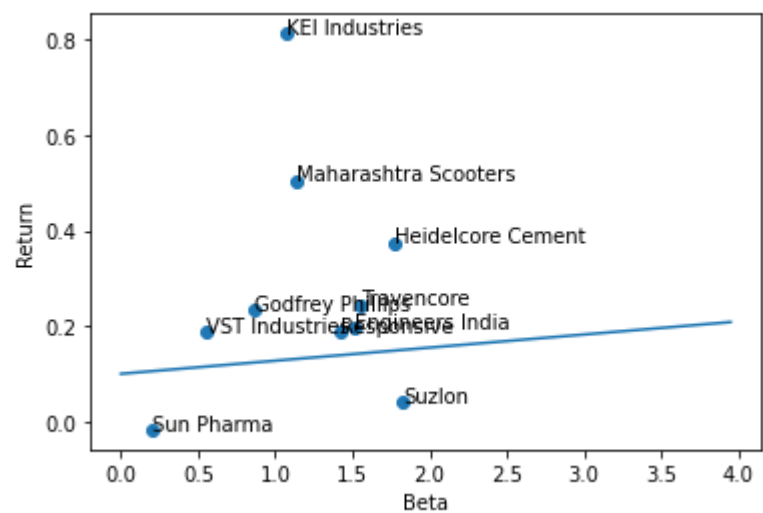


The chosen Market portfolio is : NSE

Analysis of non_nse stocks:

Name of the stock : Suzlon
The above mentioned stock is overvalued
Name of the stock : Godfrey Phillips
The above mentioned stock is undervalued
Name of the stock : Engineers India
The above mentioned stock is undervalued
Name of the stock : Maharashtra Scooters
The above mentioned stock is undervalued
Name of the stock : KEI Industries
The above mentioned stock is undervalued
Name of the stock : Sun Pharma
The above mentioned stock is overvalued
Name of the stock : Travencore
The above mentioned stock is undervalued
Name of the stock : Responsive
The above mentioned stock is undervalued
Name of the stock : Heidelcore Cement
The above mentioned stock is undervalued
Name of the stock : VST Industries
The above mentioned stock is undervalued

Security Market Line



The chosen Market portfolio is : NSE

In []: