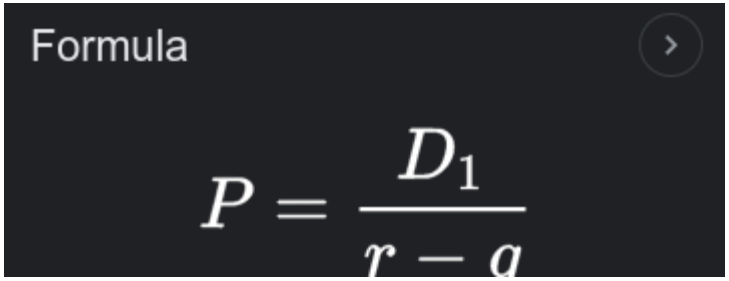
In [ ]:
```
import pandas as pd
import matplotlib.pyplot as plt
import os
import numpy as np
from scipy import stats
import seaborn as sns
```

Dividend Discount Model

Time Period: Jan 01, 2017 - Dec 31, 2021

In [ ]:
```
def create_div_table(file_name):
  df = pd.read_csv(f"./data/{file_name}.csv", index_col=0)

  df.index = pd.to_datetime(df.index)

  year_group = df.groupby([df.index.year])
  year_group.sum().index.name = "Year"

  div_table = year_group.sum()
  div_table["Growth"] = div_table["Dividends"].pct_change()

  return div_table
```

Dividend Discount Model:



In [ ]:

```python
def get_dividend_model(div_df, cur_sp):
  # This is just because
  avg_growth = div_df["Growth"].mean()

  init_div = div_df.iloc[0]["Dividends"]
  cur_div = div_df.iloc[-1]["Dividends"]

  n = len(div_df["Dividends"]) - 1

  growth = (cur_div/init_div)**(1/n) - 1
  d1 = cur_div * (1+growth)

  ke = (d1 / cur_sp) + growth

  next_year = pd.DataFrame({
    "Dividends": [d1],
    "Growth": [growth]
  }, index=(div_df.iloc[-1].name + 1,))

  updated_div = pd.concat([div_df, next_year])
  updated_div.index.name = "Year"
  # print("Dividend Table")
  # print(updated_div)

  # yield_ke = pd.Series([ke], ["Yield (ke)"])
  expected_return = f"Expected Return (ke): {round(ke*100, 2)}%"
  # print(yield_ke)

  # future_div = pd.Series([d1], ["Predicted Dividend"])
  future_div = f"Predicted Dividend: Rs. {round(d1, 2)}"
  # print(future_div)

  return [updated_div, expected_return, future_div]
```

Company: Infosys

In [ ]:
```
infy_cur_price = 1863.3
infy_div = create_div_table("div_infy")

infy_div_table, infy_ke, infy_future_div = get_dividend_model(infy_div, infy_cur_price)
```

In [ ]:
```
infy_div_table
```

Out[ ]:

Year	Dividends	Growth
2017	13.875000	NaN
2018	12.000000	-0.135135
2019	30.500000	1.541667
2020	21.500000	-0.295082
2021	30.000000	0.395349
2022	36.378377	0.212613

In [ ]:
```
print(infy_ke)
```

```
Expected Return (ke): 23.21%
```

In [ ]:
```
print(infy_future_div)
```

```
Predicted Dividend: Rs. 36.38
```

Company: TCS

Tata Consultancy Services Limited
(TCS.NS)
NSE - NSE Real Time Price. Currency in INR

3,814.80 +44.45 (+1.18%)
At close: 03:29PM IST

In [ ]:
```
tcs_cur_price = 3814.8
tcs_div = create_div_table("div_tcs")

tcs_div_table, tcs_ke, tcs_future_div = get_dividend_model(tcs_div, tcs_cur_price)
```

In [ ]:
```
tcs_div_table
```

Out[ ]:

Year	Dividends	Growth
2017	24.000000	NaN
2018	26.000000	0.083333
2019	67.000000	1.576923
2020	40.000000	-0.402985
2021	35.000000	-0.125000
2022	38.462034	0.098915

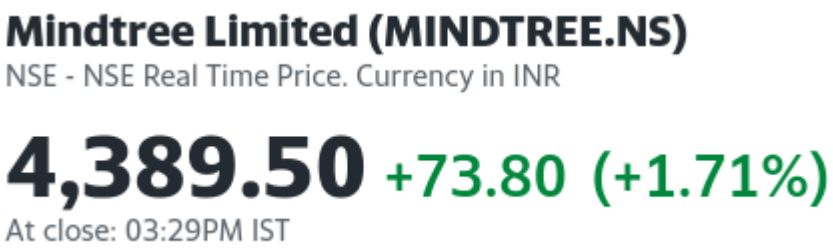
In [ ]:
```
print(tcs_ke)
```

```
Expected Return (ke): 10.9%
```

In [ ]:
```
print(tcs_future_div)
```

```
Predicted Dividend: Rs. 38.46
```

Company: Mindtree



In [ ]:
```
mt_cur_price = 4389.5
mt_div = create_div_table("div_mindtree")

mt_div_table, mt_ke, mt_future_div = get_dividend_model(mt_div, mt_cur_price)
```

In [ ]:
```
mt_div_table
```

Out[ ]:

Year	Dividends	Growth
2017	9.00000	NaN
2018	13.00000	0.444444
2019	49.00000	2.769231
2020	17.50000	-0.642857
2021	27.50000	0.571429
2022	36.35844	0.322125

In [ ]:
```
print(mt_ke)
```

```
Expected Return (ke): 33.04%
```

In [ ]:

```
print(mt_future_div)
```

```
Predicted Dividend: Rs. 36.36
```

Capital Asset Pricing Model

Time Period: Jan 01, 2017 - Dec 31, 2021

In [ ]:

```
def get_closing_series(file_name, col_name):
  df = pd.read_csv(f"./data/{file_name}.csv", index_col=0)
  df.index = pd.to_datetime(df.index)

  try:
    close_prices = df.loc[:, "Adj Close"]
  except:
    close_prices = df.loc[:, "Price"]

  close_prices.name = col_name
  return close_prices
```

In [ ]:

```
nifty_50 = get_closing_series("nifty_50", "nifty")
nifty_it = get_closing_series("nifty_it", "nifty")
risk_free = get_closing_series("risk_free_return", "bond_price")
```

In [ ]:

```
infy = get_closing_series("sp_infy", "stock_price")
tcs = get_closing_series("sp_tcs", "stock_price")
mindtree = get_closing_series("sp_mindtree", "stock_price")

infy_df = pd.concat([infy, nifty_50, risk_free], axis=1)
infy_df = infy_df.dropna()

tcs_df = pd.concat([tcs, nifty_50, risk_free], axis=1)
tcs_df = tcs_df.dropna()

mindtree_df = pd.concat([mindtree, nifty_it, risk_free], axis=1)
mindtree_df = mindtree_df.dropna()

check_na = infy_df.isna().sum()

for df in [infy_df, tcs_df, mindtree_df]:
  check_na = df.isna().sum().sum()
  if check_na:
    print(check_na)
```

In [ ]:

```
def cagr(final, initial, n):
  return (final/initial)**(1/n) - 1
```

In [ ]:

```
df["bond_return"] = df["bond_price"].pct_change()
# rf = df["bond_return"].sum()

# TODO: Doubt, ask ma'am!
# real_n = (len(df) - 1) / (5*4*12)
# # rf_alt = cagr(df["bond_return"][-1], df["bond_return"][1], real_n)
# rf_alt = cagr(0.00124, -0.00128, 5)
# print("rf:", rf)
# print(df["bond_return"][-1], df["bond_return"][1], real_n)
# print("rf_alt:", rf_alt)

# The India 10 Years Government Bond has a 7.119% yield.
annual_bond_return = 0.07119
annual_inflation = 0.0397

rf = ((1+annual_bond_return)/(1+annual_inflation)) - 1
print(rf)

def calc_expected_return(df, rf):

  df["stock_return"] = df["stock_price"].pct_change()
  df["nifty_return"] = df["nifty"].pct_change()

  count = len(df) - 1
  market_days_pa = 5 * 4 * 12
  n = count / market_days_pa

  market_cagr = cagr(df.iloc[-1]["nifty"], df.iloc[1]["nifty"], n)
  print(f"Market CAGR: {round(market_cagr * 100, 2)}%")

  market_return = df["nifty_return"][1:].values
  stock_return = df["stock_return"][1:].values

  (beta, alpha) = stats.linregress(market_return, stock_return)[0:2]
  print(f"beta:{round(beta, 2)}")

  # CAPM
  ke = rf + beta * (market_cagr - rf)
  print(f"ke: {round(ke * 100, 2)}%")

  capm_model = pd.DataFrame({"Values": [market_cagr, beta, ke]}, index=["Rm (%)", "beta", "ke (%)"])
  capm_model.index.names = ["Particulars"]
  return capm_model
```

```
0.03028758295662204
```

In [ ]:

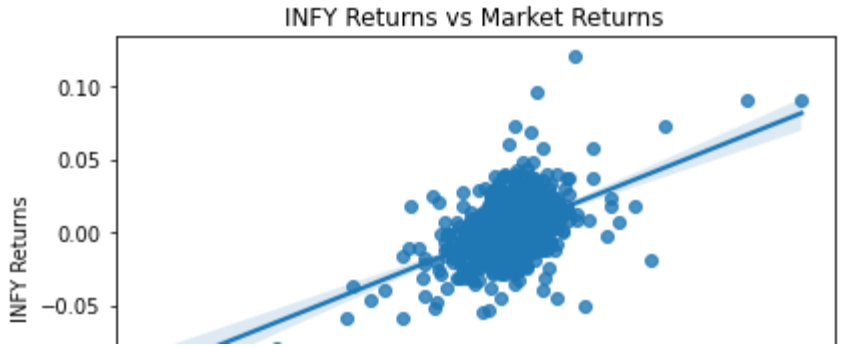
```
def plot_graph(df, stock_name):
  market_return = df["nifty_return"][1:].values
  stock_return = df["stock_return"][1:].values

  sns.regplot(x=market_return, y=stock_return)
  plt.xlabel("Market Returns")
  plt.ylabel(f"{stock_name} Returns")
  plt.title(f"{stock_name} Returns vs Market Returns")

  # plt.xticks(np.arange(min(market_return), max(market_return), 0.05))

  plt.tight_layout()
  plt.show()
```

Company: Infosys

In [ ]:

```
infy_capm_df = calc_expected_return(infy_df, rf)
plot_graph(infy_df, "INFY")
infy_capm_df
```

```
Market CAGR: 15.94%
beta:0.75
ke: 12.72%
```



Analysis INFY:

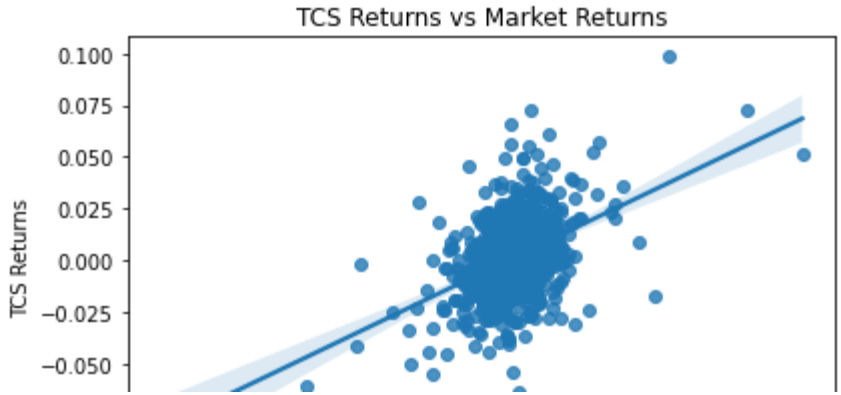
Infosys is a defensive stock, as the beta is 0.75, meaning that if Nifty 50 increases by 1%, then INFY increases by 0.75%

The required rate of return is 12.77% per annum which is lower than the market return.

Company: TCS

In [ ]:
```
tcs_capm_df = calc_expected_return(tcs_df, rf)
plot_graph(tcs_df, "TCS")
tcs_capm_df
```

```
Market CAGR: 15.94%
beta:0.63
ke: 11.15%
```



Analysis TCS:

Infosys is a defensive stock, as the beta is 0.63, meaning that if Nifty 50 increases by 1%, then TCS increases by 0.63%

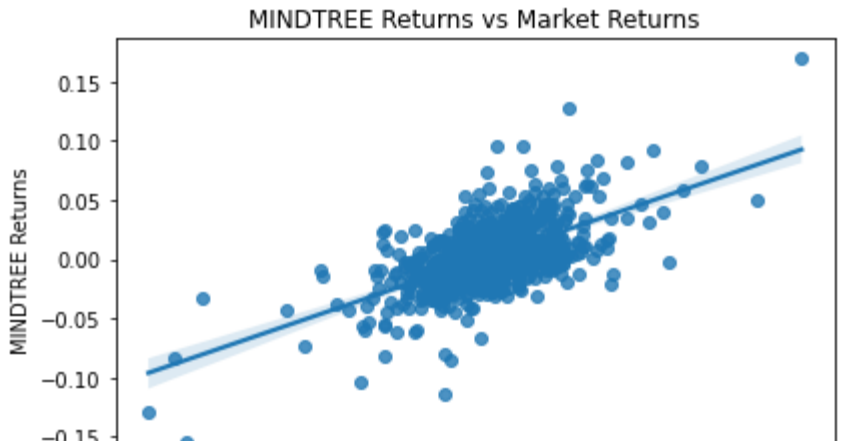
The required rate of return is 11.23% per annum which is lower than the market return.

Company: Mindtree

In [ ]:

```
mt_capm_df = calc_expected_return(mindtree_df, rf)
plot_graph(mindtree_df, "MINDTREE")
mt_capm_df
```

```
Market CAGR: 29.85%
beta:1.01
ke: 30.24%
```



Analysis Mindtree:

Mintree is a slightly risky stock, as the beta is 1.02, meaning that if Nifty IT increases by 1%, then Mindtree increases by 1.02%

The required rate of return is 30.24% per annum which is lower than the market return.

Analyzing Financial Statements

In [ ]:

```
def read_fin_files(ticker):
  income_st = pd.read_csv(f"./fin_data/{ticker}_IS.csv", index_col=0)
  balance_sh = pd.read_csv(f"./fin_data/{ticker}_BS.csv", index_col=0)

  return (income_st, balance_sh)
```

In [ ]:

```
def create_dividend_policy_table(fin_statements, ticker):
  """fin_statements: (income_statement, balance_sheet)

  Returns a df: Dividend Policy
  """
  div_pol_rows = []

  div_pol_rows.append(fin_statements[0].loc["Basic EPS (Rs.)"])
  div_pol_rows.append(fin_statements[0].loc["Profit/Loss For The Period"])
  div_pol_rows.append(fin_statements[1].loc["Total Shareholders Funds"])

  div_policy = pd.DataFrame(div_pol_rows)

  div_policy.reset_index(drop=False, inplace=True)
  div_policy.set_index("index", inplace=True)
  div_policy.index.names = ["Particulars"]

  # TODO: Add if statements.

  if ticker == "INFY.NS":
    divi = infy_div_table[2:-1]
  elif ticker == "TCS.NS":
    divi = tcs_div_table[2:-1]
  elif ticker == "MINDTREE.NS":
    divi = mt_div_table[2:-1]

  divis = divi["Dividends"].sort_index(ascending=False)
  dps_ser = pd.DataFrame(divis).transpose()
  dps_ser.columns = [2021, 2020, 2019]

  div_policy.columns = [2021, 2020, 2019]
  div_policy = pd.concat([div_policy, dps_ser], axis=0)
  div_policy.index.names = ["Particulars"]

  # ["Dividends"] == "DPS"
  div_policy.loc["Dividend Payout Ratio"] = div_policy.loc["Dividends"] / div_policy.loc["Basic EPS (Rs.)"]

  # Retention Ratio (b)
  div_policy.loc["Retention Ratio"] = 1 - div_policy.loc["Dividend Payout Ratio"]

  # Return on Equity
  div_policy.loc["RoE (%)"] = div_policy.loc["Profit/Loss For The Period"] / div_policy.loc["Total Shareholc
```

```
  div_policy.loc["Growth Rate (%)"] = div_policy.loc["Retention Ratio"] * div_policy.loc["RoE (%)"]

  return div_policy
```

In [ ]:

```
def create_leverage_ratio_table(fin_statements):
  """fin_statements: (income_statement, balance_sheet)

  Returns a df: Leverage Ratio Table
  """
  rows = []

  rows.append(fin_statements[0].loc["Total Operating Revenues"])
  rows.append(fin_statements[0].loc["Operating And Direct Expenses"])
  rows.append(fin_statements[0].loc["Employee Benefit Expenses"])
  rows.append(fin_statements[0].loc["Revenue From Operations [Gross]"])

  leverage_ratio_df = pd.DataFrame(rows)
  leverage_ratio_df.index.names = ["Particulars"]

  leverage_ratio_df.loc["Variable Cost"] = leverage_ratio_df.loc["Operating And Direct Expenses"] + 0.5 * le

  leverage_ratio_df.loc["Contribution"] = leverage_ratio_df.loc["Revenue From Operations [Gross]"] - leverag

  leverage_ratio_df.loc["EBIT"] = fin_statements[0].loc["Profit/Loss Before Tax"] + fin_statements[0].loc["F

  leverage_ratio_df.loc["Operating Leverage"] = leverage_ratio_df.loc["Contribution"] / leverage_ratio_df.lo

  leverage_ratio_df.loc["Finance Cost"] = fin_statements[0].loc["Finance Costs"]

  leverage_ratio_df.loc["Depreciation And Amortisation Expenses"] = fin_statements[0].loc["Depreciation And

  leverage_ratio_df.loc["Financing Leverage Ratio"] = leverage_ratio_df.loc["EBIT"] / fin_statements[0].loc[

  leverage_ratio_df.loc["Interest Coverage Ratio"] = leverage_ratio_df.loc["EBIT"] / leverage_ratio_df.loc["

  return leverage_ratio_df
```

In [ ]:

```
def create_debt_equity_table(fin_statements):
  """fin_statements: (income_statement, balance_sheet)

  Returns a df: Debt Equity Table
  """
  rows = []

  rows.append(fin_statements[1].loc["Total Non-Current Liabilities"])
  rows.append(fin_statements[1].loc["Total Current Liabilities"])

  debt_equity_df = pd.DataFrame(rows)
  debt_equity_df.index.names = ["Particulars"]

  debt_equity_df.loc["Total Borrowings"] = debt_equity_df.iloc[0] + debt_equity_df.iloc[1]

  debt_equity_df.loc["Total Shareholders Funds"] = fin_statements[1].loc["Total Shareholders Funds"]

  debt_equity_df.loc["Debt / Equity Ratio"] = debt_equity_df.loc["Total Borrowings"] / debt_equity_df.loc["T

  return debt_equity_df
```

In [ ]:

```
def create_misc_table(fin_statements, ticker, div_policy, debt_equity_table):
  """fin_statements: (income_statement, balance_sheet)

  Returns a df: Misc. Table
  """

  if ticker == "INFY.NS":
    ke = infy_capm_df.iloc[2]["Values"]
    stock_price = infy_cur_price
    d1 = infy_div_table.loc[2022][0]
  elif ticker == "TCS.NS":
    ke = tcs_capm_df.iloc[2]["Values"]
    stock_price = tcs_cur_price
    d1 = tcs_div_table.loc[2022][0]
  elif ticker == "MINDTREE.NS":
    ke = mt_capm_df.iloc[2]["Values"]
    stock_price = mt_cur_price
    d1 = mt_div_table.loc[2022][0]

  no_shares = fin_statements[1].loc["No. of Shares"][0]
  fin_costs = fin_statements[0].loc["Finance Costs"][0]
  total_borrowings = debt_equity_table.loc["Total Borrowings"][0]
  # Short formula
  kd = fin_costs / total_borrowings

  ebt = fin_statements[0].loc["Profit/Loss Before Tax"][0]
  tax_exp = fin_statements[0].loc["Total Tax Expenses"][0]
  tax_rate = tax_exp / ebt
  kd_post = kd * (1 - tax_rate)

  growth = div_policy.loc["Growth Rate (%)"][2021]

  cost_re = d1/stock_price + growth

  index = ["ke", "Market Price of Share", "No. of Shares", "Finance Costs", "Total Borrowings", "kd", "EBT",
  data = [ke, stock_price, no_shares, fin_costs, total_borrowings, kd, ebt, tax_exp, tax_rate, kd_post, d1,

  wacc_df = pd.DataFrame({"Values": data}, index=index)
  wacc_df.index.names = ["Particulars"]

  return wacc_df
```

In [ ]:

```
def create_wacc_table(fin_statements, isBook, misc_table):
  """fin_statements: (income_statement, balance_sheet)

  type: "book" or "market"

  Returns a df: Misc. Table
  """
  data = {}
  # Book value of debt = long term debts + trades payable (total borrowings)
  debt = misc_table.loc["Total Borrowings"][0]

  if isBook:
    equity = fin_statements[1].loc["Total Shareholders Funds"][0]
  else:
    equity = misc_table.loc["Market Price of Share"][0] * misc_table.loc["No. of Shares"][0]

  re = fin_statements[1].loc["Total Reserves and Surplus"][0]

  if isBook:
    data["Book Value"] = [debt, equity, re]
  else:
    data["Market Value"] = [debt, equity, re]

  wacc_book_df = pd.DataFrame(data, index=["Debt", "Equity", "Retained Earnings"])
  wacc_book_df.index.names = ["Particulars"]

  wacc_book_df.loc["Total"] = wacc_book_df.sum()

  if isBook:
    total_val = wacc_book_df["Book Value"][-1]
  else:
    total_val = wacc_book_df["Market Value"][-1]

  ratios = []

  for i in range(len(wacc_book_df)):
    if isBook:
      ratios.append(wacc_book_df["Book Value"][i] / total_val)
    else:
      ratios.append(wacc_book_df["Market Value"][i] / total_val)

  wacc_book_df["Ratio"] = ratios
```

```
  kd = misc_table.loc["kd"][0]
  ke = misc_table.loc["ke"][0]
  kre = misc_table.loc["Cost of RE"][0]

  wacc_book_df["Specific Cost"] = [kd, ke, kre, None]

  wacc = 0

  for i in range(len(wacc_book_df) - 1):
    wacc += wacc_book_df["Ratio"][i] * wacc_book_df["Specific Cost"][i]

  if isBook:
    label = f"WACC Book:"
  else:
    label = f"WACC Market:"

  wacc_book_df["Specific Cost"] = [kd, ke, kre, f"{label} {round(wacc * 100, 2)}%"]

  return wacc_book_df
```

In [ ]:

```
infy_fin_statements = read_fin_files("INFY.NS")
tcs_fin_statements = read_fin_files("TCS.NS")
mt_fin_statements = read_fin_files("MINDTREE.NS")
```

Company: Infosys

In [ ]:

```
infy_div_policy = create_dividend_policy_table(infy_fin_statements, "INFY.NS").round(4)
infy_div_policy
```

Out[ ]:

Particulars	2021	2020	2019
Basic EPS (Rs.)	42.3700	36.3400	33.6600
Profit/Loss For The Period	18048.0000	15543.0000	14702.0000
Total Shareholders Funds	71531.0000	62234.0000	62711.0000
Dividends	30.0000	21.5000	30.5000
Dividend Payout Ratio	0.7080	0.5916	0.9061

Particulars	2021	2020	2019
Retention Ratio	0.2920	0.4084	0.0939

Findings:

- It is clear that INFY has increased its profitability, as the EPS has increased from Rs. 33.66 to Rs. 42.37
- The total shareholders' funds suggests that the company recently got an investment of Rs. 10,000 crs.
- The dividends (DPS) had decreased in 2020, maybe because of the pandemic
- The company has a massive dividend payout ratio which means that as a common stock investment, INFY is a great company to invest your money

In [ ]:
```
create_leverage_ratio_table(infy_fin_statements).round(4)
```

Out[ ]:

Particulars	2021	2020	2019
Total Operating Revenues	85912.0000	79047.0000	73107.0000
Operating And Direct Expenses	13533.0000	13791.0000	12633.0000
Employee Benefit Expenses	45179.0000	42434.0000	38296.0000
Revenue From Operations [Gross]	85912.0000	79047.0000	73107.0000
Variable Cost	36122.5000	35008.0000	31781.0000
Contribution	49789.5000	44039.0000	41326.0000
EBIT	24603.0000	20591.0000	19927.0000
Operating Leverage	2.0237	2.1387	2.0739
Finance Cost	126.0000	114.0000	0.0000
Depreciation And Amortisation Expenses	2321.0000	2144.0000	1599.0000
Financing Leverage Ratio	1.0051	1.0056	1.0000
Interest Coverage Ratio	195.2619	180.6228	inf

Findings:

- Companies with a high interest coverage ratio means that they are in a good position to pay their dues

In [ ]:
```
infy_debt_equity_table = create_debt_equity_table(infy_fin_statements).round(4)
infy_debt_equity_table
```

Out[ ]:

Particulars	2021	2020	2019
Total Non-Current Liabilities	4786.0000	3587.0000	789.0000
Total Current Liabilities	17622.0000	15220.0000	15430.0000
Total Borrowings	22408.0000	18807.0000	16219.0000
Total Shareholders Funds	71531.0000	62234.0000	62711.0000
Debt / Equity Ratio	0.3133	0.3022	0.2586

Findings:

- A low debt/equity ratio suggest that the firm has more of equity in its capital structure

In [ ]:
```
infy_misc_table = create_misc_table(infy_fin_statements, "INFY.NS", infy_div_policy, infy_debt_equity_table)
infy_misc_table
```

Out[ ]:

Particulars	Values
ke	0.1272
Market Price of Share	1863.3000
No. of Shares	419.0000
Finance Costs	126.0000
Total Borrowings	22408.0000
kd	0.0056

Particulars	Values
EBT	24477.0000
Total Tax Expenses	6429.0000
Tax Rate	0.2627
kd (Post Tax)	0.0041
D1	36.3784

In [ ]:
```
create_wacc_table(infy_fin_statements, True, infy_misc_table).round(4)
```

Out[ ]:

Particulars	Book Value	Ratio	Specific Cost
Debt	22408.0	0.1375	0.0056
Equity	71531.0	0.4389	0.1272
Retained Earnings	69029.0	0.4236	0.0932
Total	162968.0	1.0000	WACC Book: 9.61%

In [ ]:
```
create_wacc_table(infy_fin_statements, False, infy_misc_table).round(4)
```

Out[ ]:

Particulars	Market Value	Ratio	Specific Cost
Debt	22408.0	0.0257	0.0056
Equity	780722.7	0.8952	0.1272
Retained Earnings	69029.0	0.0791	0.0932
Total	872159.7	1.0000	WACC Market: 12.14%

Findings:

- The expected return of INFY is 12.14% which is not so high, as compare to other stocks in the technology sector, but it is still on the

Company: TCS

In [ ]:
```
tcs_div_policy = create_dividend_policy_table(tcs_fin_statements, "TCS.NS").round(4)
tcs_div_policy
```

Out[ ]:

Particulars	2021	2020	2019
Basic EPS (Rs.)	82.7800	88.6400	79.3400
Profit/Loss For The Period	30960.0000	33260.0000	30065.0000
Total Shareholders Funds	74794.0000	74368.0000	78898.0000
Dividends	35.0000	40.0000	67.0000
Dividend Payout Ratio	0.4228	0.4513	0.8445
Retention Ratio	0.5772	0.5487	0.1555
RoE (%)	0.4139	0.4472	0.3811
Growth Rate (%)	0.2389	0.2454	0.0593

Findings:

- TCS has significantly dropped their dividend payout ratio
- The return on equity has remained almost at 40% thur the 3 year period

In [ ]:
```
create_leverage_ratio_table(tcs_fin_statements).round(4)
```

Out[ ]:

Particulars	2021	2020	2019
Total Operating Revenues	135963.0000	131306.0000	123170.0000
Operating And Direct Expenses	1230.0000	1596.0000	2003.0000

Particulars	2021	2020	2019
Employee Benefit Expenses	69046.0000	64906.0000	59377.0000
Revenue From Operations [Gross]	135963.0000	131306.0000	123170.0000
Variable Cost	35753.0000	34049.0000	31691.5000
Contribution	100210.0000	97257.0000	91478.5000
EBIT	41439.0000	42734.0000	40875.0000
Operating Leverage	2.4183	2.2759	2.2380
Finance Cost	537.0000	743.0000	170.0000
Depreciation And Amortisation Expenses	3053.0000	2701.0000	1716.0000

In [ ]:
```
tcs_debt_equity_table = create_debt_equity_table(tcs_fin_statements).round(4)
tcs_debt_equity_table
```

Out[ ]:

Particulars	2021	2020	2019
Total Non-Current Liabilities	6062.0000	6581.0000	1706.0000
Total Current Liabilities	28525.0000	24026.0000	18896.0000
Total Borrowings	34587.0000	30607.0000	20602.0000
Total Shareholders Funds	74794.0000	74368.0000	78898.0000
Debt / Equity Ratio	0.4624	0.4116	0.2611

Findings:

- The debt equity ratio is rising, as the years progress
- This means that the company is trying to introduce debt in its capital structure

In [ ]:
```
tcs_misc_table = create_misc_table(tcs_fin_statements, "TCS.NS", tcs_div_policy, tcs_debt_equity_table).rour
tcs_misc_table
```

Out[ ]:

Particulars	Values
ke	0.1115
Market Price of Share	3814.8000
No. of Shares	366.0000
Finance Costs	537.0000
Total Borrowings	34587.0000
kd	0.0155
EBT	40902.0000
Total Tax Expenses	9942.0000
Tax Rate	0.2431
kd (Post Tax)	0.0118
D1	38.4620
Growth Rate (%)	0.2389
Cost of RE	0.2490

Findings:

- The dividends are expected to grow to Rs. 38.46 per share in the next financial year

In [ ]:
```
create_wacc_table(tcs_fin_statements, True, tcs_misc_table).round(4)
```

Out[ ]:

Particulars	Book Value	Ratio	Specific Cost
Debt	34587.0	0.1882	0.0155

Particulars	Book Value	Ratio	Specific Cost
Equity	74794.0	0.4069	0.1115

In [ ]:
```
create_wacc_table(tcs_fin_statements, False, tcs_misc_table).round(4)
```

Out[ ]:

Particulars	Market Value	Ratio	Specific Cost
Debt	34587.0	0.0230	0.0155
Equity	1396216.8	0.9276	0.1115
Retained Earnings	74424.0	0.0494	0.249
Total	1505227.8	1.0000	WACC Market: 11.61%

Findings:

- The WACC Market is lower than the Book value for the same, this is because the cost of retained earnings is near 25%
- Meaning that to retain Re. 1, the company needs to payout Rs. 1.25 per share
- The market value to the equity share of TCS is massive
- Meaning that their is a high demand for the stock

Company: Mindtree

In [ ]:
```
mt_div_policy = create_dividend_policy_table(mt_fin_statements, "MINDTREE.NS").round(4)
mt_div_policy
```

Out[ ]:

Particulars	2021	2020	2019
Basic EPS (Rs.)	67.4300	38.3500	45.9400
Profit/Loss For The Period	1110.3000	630.8000	754.0000
Total Shareholders Funds	4318.6000	3156.6000	3306.0000

Particulars	2021	2020	2019
Dividends	27.5000	17.5000	49.0000
Dividend Payout Ratio	0.4078	0.4563	1.0666
Retention Ratio	0.5922	0.5437	-0.0666

Findings:

- Surprisingly, the dividend payout ratio is more than 1, meaning that Mindtree, in 2019, used to payout more than they earned during the financial year
- They have managed from that situation and are now retaining around 59% of their earnings

In [ ]:
```
create_leverage_ratio_table(mt_fin_statements).round(4)
```

Out[ ]:

Particulars	2021	2020	2019
Total Operating Revenues	7967.8000	7764.3000	7021.5000
Operating And Direct Expenses	0.0000	0.0000	0.0000
Employee Benefit Expenses	5113.2000	5064.7000	4421.1000
Revenue From Operations [Gross]	7967.8000	7764.3000	7021.5000
Variable Cost	2556.6000	2532.3500	2210.5500
Contribution	5411.2000	5231.9500	4810.9500
EBIT	1548.6000	881.6000	989.6000
Operating Leverage	3.4943	5.9346	4.8615
Finance Cost	50.4000	52.9000	2.9000
Depreciation And Amortisation Expenses	259.6000	275.4000	164.1000
Financing Leverage Ratio	1.0336	1.0638	1.0029
Interest Coverage Ratio	30.7262	16.6654	341.2414

In [ ]:
```
mt_debt_equity_table = create_debt_equity_table(mt_fin_statements).round(4)
mt_debt_equity_table
```

Out[ ]:

Particulars	2021	2020	2019
Total Non-Current Liabilities	449.8000	676.2000	17.9000
Total Current Liabilities	1592.2000	1323.7000	855.1000
Total Borrowings	2042.0000	1999.9000	873.0000
Total Shareholders Funds	4318.6000	3156.6000	3306.0000
Debt / Equity Ratio	0.4728	0.6336	0.2641

In [ ]:
```
mt_misc_table = create_misc_table(mt_fin_statements, "MINDTREE.NS", mt_div_policy, mt_debt_equity_table).rou
mt_misc_table
```

Out[ ]:

Particulars	Values
ke	0.3024
Market Price of Share	4389.5000
No. of Shares	16.4830
Finance Costs	50.4000
Total Borrowings	2042.0000
kd	0.0247
EBT	1498.2000
Total Tax Expenses	387.9000
Tax Rate	0.2589
kd (Post Tax)	0.0183
D1	36.3584
Growth Rate (%)	0.1522

Particulars	Values

Findings:

- Dividends for the next financial year are predicted to increase significantly

In [ ]:
```
create_wacc_table(mt_fin_statements, True, mt_misc_table).round(4)
```

Out[ ]:

Particulars	Book Value	Ratio	Specific Cost
Debt	2042.0	0.1942	0.0247
Equity	4318.6	0.4107	0.3024
Retained Earnings	4153.9	0.3951	0.1605
Total	10514.5	1.0000	WACC Book: 19.24%

In [ ]:
```
create_wacc_table(mt_fin_statements, False, mt_misc_table).round(4)
```

Out[ ]:

Particulars	Market Value	Ratio	Specific Cost
Debt	2042.0000	0.0260	0.0247
Equity	72352.1285	0.9211	0.3024
Retained Earnings	4153.9000	0.0529	0.1605
Total	78548.0285	1.0000	WACC Market: 28.77%

Findings:

- The stock has a super high WACC Market, meaning that investors believe that the stock must give them an expected return of around 29% annually