financial-analytics

May 28, 2024

```
[1]: import pandas as pd
     import matplotlib.pyplot as plt
     import seaborn as sns
```

```
[2]: data =pd.read_csv(r"C:\Users\pc\Downloads\Financial Analytics data.csv")
```

```
[3]: # Rename columns for easier access
     data.columns = ['Serial Number', 'Name', 'Market Cap - Crore', 'Sales Qtr -␣
      ↪Crore']
```

```
[4]: # Data Cleaning
     data['Market Cap - Crore'] = pd.to_numeric(data['Market Cap - Crore'],␣
      ↪errors='coerce')
     data['Sales Qtr - Crore'] = pd.to_numeric(data['Sales Qtr - Crore'],␣
      ↪errors='coerce')
     data.dropna(inplace=True)
```

```
[5]: # Key Metrics
     total_market_cap = data['Market Cap - Crore'].sum()
     average_market_cap = data['Market Cap - Crore'].mean()
     total_quarterly_sales = data['Sales Qtr - Crore'].sum()
     average_quarterly_sales = data['Sales Qtr - Crore'].mean()

     top_10_market_cap = data.nlargest(10, 'Market Cap - Crore')
     top_10_sales = data.nlargest(10, 'Sales Qtr - Crore')
     print(top_10_sales)
     print(top_10_market_cap)
```

```
     Serial Number             Name  Market Cap - Crore  Sales Qtr - Crore
14              15            I O C L            178017.48          110666.93
0                1     Reliance Inds.            583436.72           99810.00
23              24        Tata Motors            117071.87           74156.07
27              28            B P C L             98278.00           60616.36
54              55            H P C L             58034.78           57474.25
9               10    St Bk of India            232763.33           57014.08
122            123     Rajesh Exports             23495.54           41304.84
40              41         Tata Steel             73376.14           32464.14
1                2               TCS            563709.84           30904.00
```

```
13                  14  Larsen & Toubro              180860.74              28747.45
      Serial Number              Name  Market Cap - Crore  Sales Qtr - Crore
0                 1  Reliance Inds.            583436.72              99810.00
1                 2             TCS            563709.84              30904.00
2                 3        HDFC Bank            482953.59              20581.27
3                 4             ITC            320985.27               9772.02
4                 5         H D F C            289497.37              16840.51
5                 6  Hind. Unilever            288265.26               8590.00
6                 7   Maruti Suzuki            263493.81              19283.20
7                 8          Infosys            248320.35              17794.00
8                 9         O N G C            239981.50              22995.88
9                10  St Bk of India            232763.33              57014.08
```
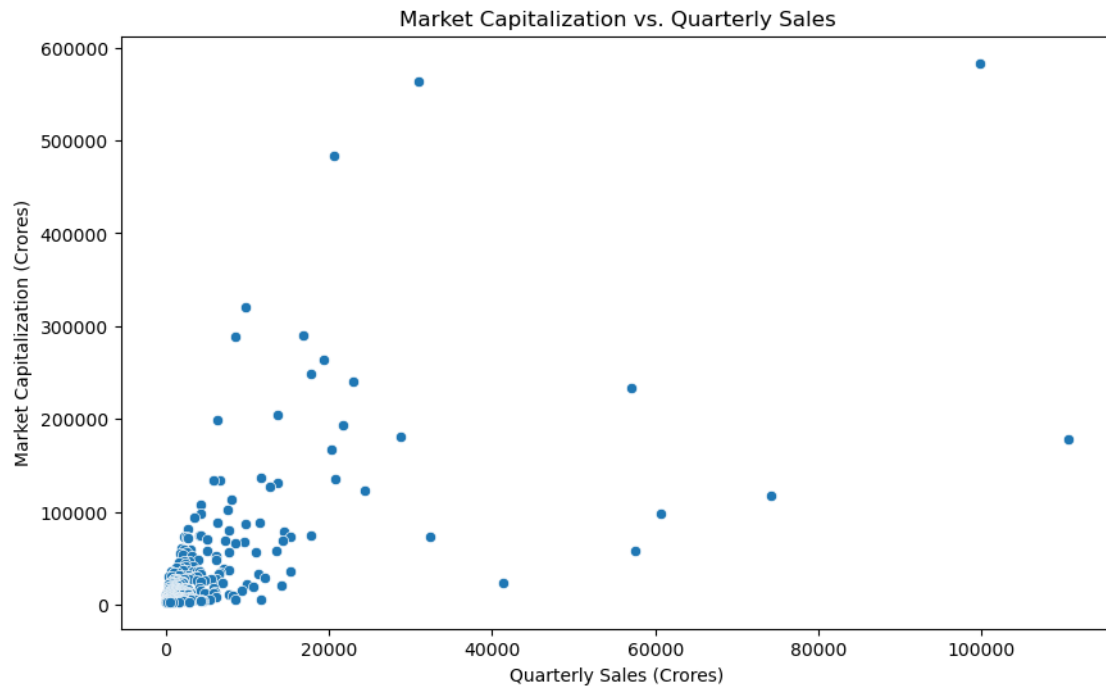
[6]:
```python
# Market Capitalization to Sales Ratio
data['Market Cap to Sales Ratio'] = data['Market Cap - Crore'] / data['Sales
 ↪Qtr - Crore']
print(data['Market Cap to Sales Ratio'])
```

```
0         5.845474
1        18.240676
2        23.465685
3        32.847382
4        17.190535
           …
482       4.972851
483       3.834074
484      12.140490
485       5.912302
486       1.062068
Name: Market Cap to Sales Ratio, Length: 459, dtype: float64
```
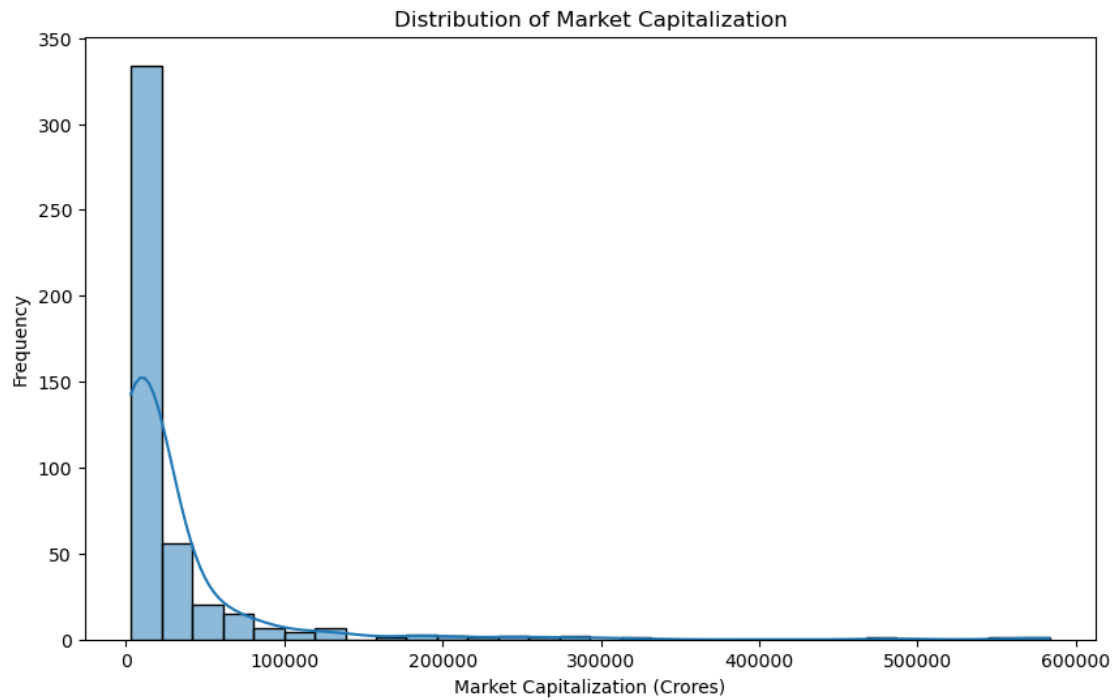
[7]:
```python
# Correlation Analysis
correlation = data['Market Cap - Crore'].corr(data['Sales Qtr - Crore'])
print(correlation)
```
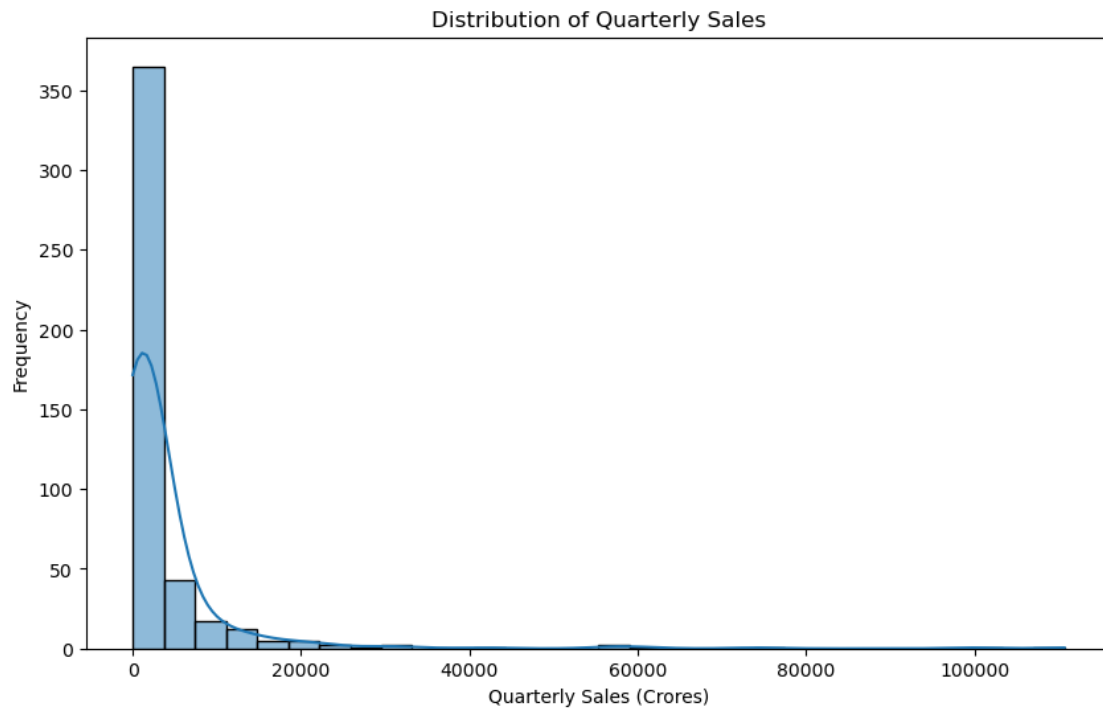
```
0.6244091422980518
```

[8]:
```python
# Visualization
plt.figure(figsize=(10, 6))
sns.scatterplot(x='Sales Qtr - Crore', y='Market Cap - Crore', data=data)
plt.title('Market Capitalization vs. Quarterly Sales')
plt.xlabel('Quarterly Sales (Crores)')
plt.ylabel('Market Capitalization (Crores)')
plt.show()
```

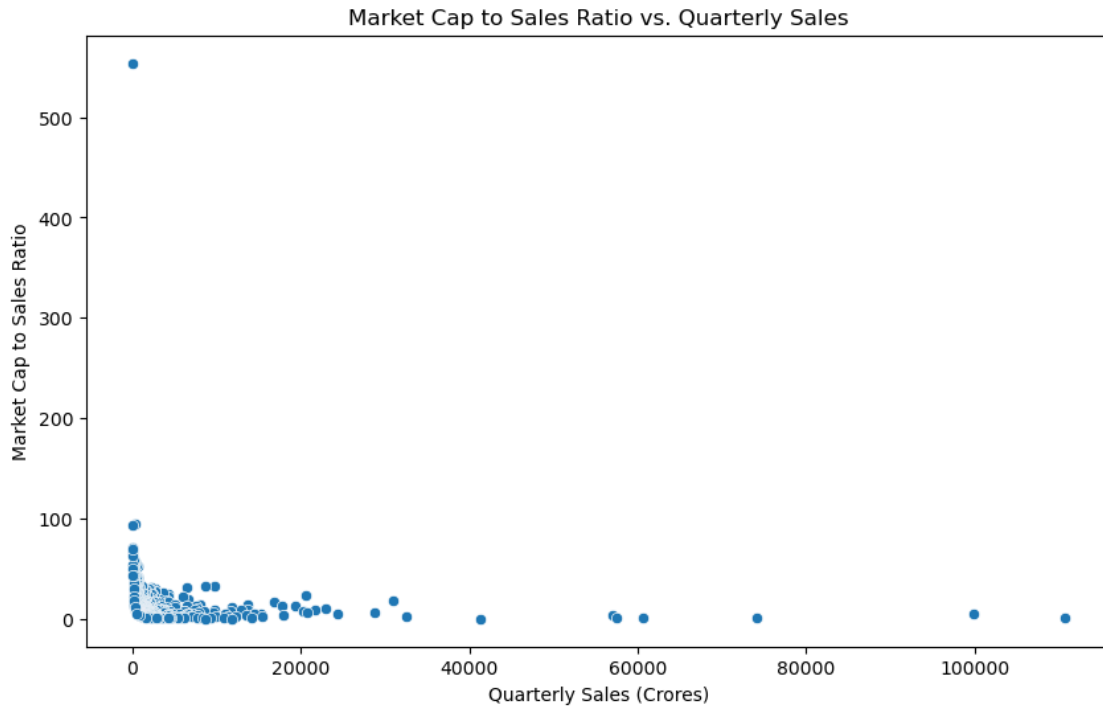Market Capitalization vs. Quarterly Sales

```
[9]: plt.figure(figsize=(10, 6))
     sns.histplot(data['Market Cap - Crore'], bins=30, kde=True)
     plt.title('Distribution of Market Capitalization')
     plt.xlabel('Market Capitalization (Crores)')
     plt.ylabel('Frequency')
     plt.show()
```

Distribution of Market Capitalization

```
[10]: plt.figure(figsize=(10, 6))
      sns.histplot(data['Sales Qtr - Crore'], bins=30, kde=True)
      plt.title('Distribution of Quarterly Sales')
      plt.xlabel('Quarterly Sales (Crores)')
      plt.ylabel('Frequency')
      plt.show()
```

Distribution of Quarterly Sales

```
[11]: plt.figure(figsize=(10, 6))
      sns.scatterplot(x='Sales Qtr - Crore', y='Market Cap to Sales Ratio', data=data)
      plt.title('Market Cap to Sales Ratio vs. Quarterly Sales')
      plt.xlabel('Quarterly Sales (Crores)')
      plt.ylabel('Market Cap to Sales Ratio')
      plt.show()
```

Market Cap to Sales Ratio vs. Quarterly Sales

```
[12]:  # Print Key Metrics
       print(f'Total Market Capitalization: {total_market_cap:.2f} Crores')
       print(f'Average Market Capitalization: {average_market_cap:.2f} Crores')
       print(f'Total Quarterly Sales: {total_quarterly_sales:.2f} Crores')
       print(f'Average Quarterly Sales: {average_quarterly_sales:.2f} Crores')
       print(f'Correlation between Market Cap and Quarterly Sales: {correlation:.2f}')

       print('Top 10 Companies by Market Capitalization:')
       print(top_10_market_cap[['Name', 'Market Cap - Crore']])

       print('Top 10 Companies by Quarterly Sales:')
       print(top_10_sales[['Name', 'Sales Qtr - Crore']])
```

```
Total Market Capitalization: 13251777.13 Crores
Average Market Capitalization: 28870.97 Crores
Total Quarterly Sales: 1747775.34 Crores
Average Quarterly Sales: 3807.79 Crores
Correlation between Market Cap and Quarterly Sales: 0.62
Top 10 Companies by Market Capitalization:
            Name   Market Cap - Crore
0   Reliance Inds.            583436.72
1             TCS            563709.84
2        HDFC Bank           482953.59
3             ITC            320985.27
```

```
4         H D F C        289497.37
5    Hind. Unilever      288265.26
6    Maruti Suzuki       263493.81
7         Infosys        248320.35
8         O N G C        239981.50
9    St Bk of India      232763.33
Top 10 Companies by Quarterly Sales:
               Name  Sales Qtr - Crore
14        I O C L        110666.93
0     Reliance Inds.      99810.00
23      Tata Motors       74156.07
27         B P C L        60616.36
54         H P C L        57474.25
9     St Bk of India      57014.08
122   Rajesh Exports      41304.84
40       Tata Steel       32464.14
1             TCS         30904.00
13   Larsen & Toubro      28747.45
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