

S&P 500 Stock Assessment and Recommendation

Results

Normalization Example

Some tables contain partial and transitive dependencies between non-prime attributes. For clarity, 2nd and 3rd normalization was performed on the tables.

Name	Symbol	Sector
3M Company	MMM	Industrials
A. O. Smith Corporation	AOS	Industrials
Abbott Laboratories	ABT	Health Care
AbbVie Inc.	ABBV	Health Care
ABIOMED Inc.	ABMD	Health Care
Accenture Plc Class A	ACN	Information Technology
Activision Blizzard Inc.	ATVI	Communication Services
Adobe Inc.	ADBE	Information Technology
Advance Auto Parts Inc.	AAP	Consumer Discretionary

Sector	Sector_ID
Communication Services	1
Consumer Discretionary	2
Consumer Staples	3
Energy	4
Financials	5
Health Care	6
Industrials	7
Information Technology	8
Materials	9
Real Estate	10
Utilities	11

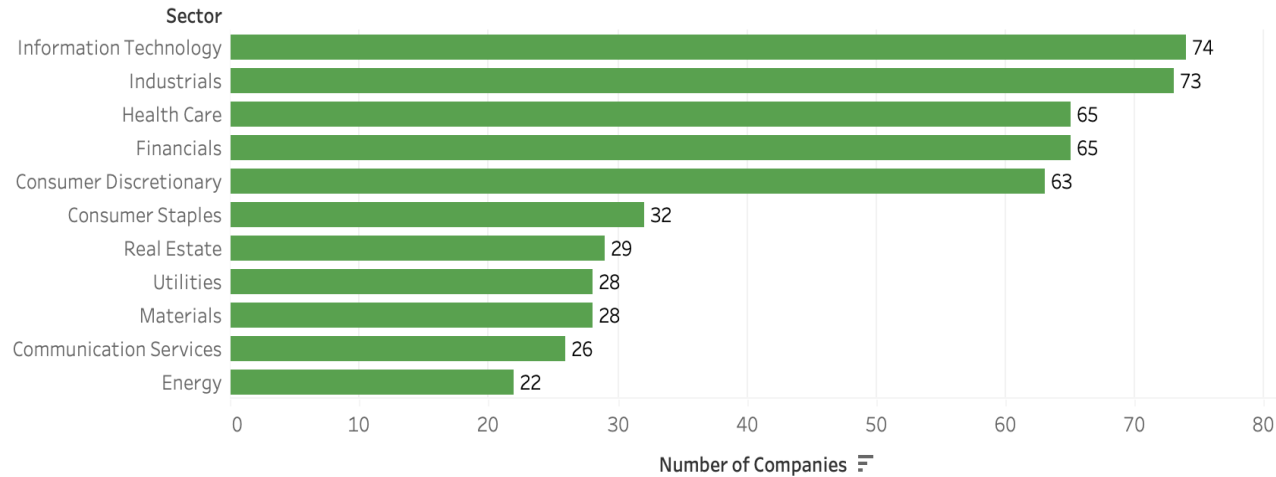
ID	Symbol	Sector_ID
1	MMM	7
2	AOS	7
3	ABT	6
4	ABBV	6
5	ABMD	6
6	ACN	8
7	ATVI	1
8	ADBE	8
9	AAP	2
10	AMD	8

What companies make up the S&P 500?

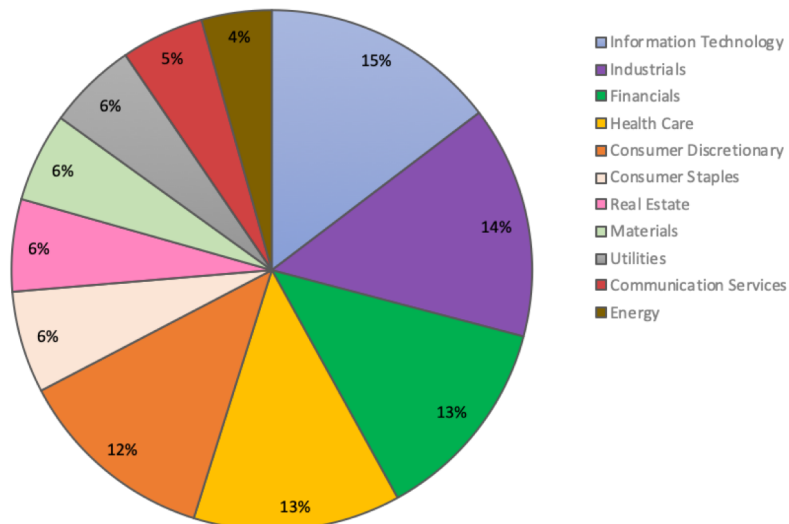
1. Sector
2. Employee
3. Founding Year & Headquarter
4. Weight

Sector

Number of Companies by Sector



Percentage of Companies by Sector



****A total of 505 companies, instead of exactly 500 companies, are included in the S&P 500**

The S&P 500 are broken down into 11 sectors:

- Information Technology
- Industrials
- Health care
- Financials
- Consumer Discretionary
- Consumer Staples
- Real Estate
- Utilities
- Materials
- Communication Services
- Energy

Within these sectors, Information Technology contains the highest number (74) of companies, which is about 15% of all 505 companies.

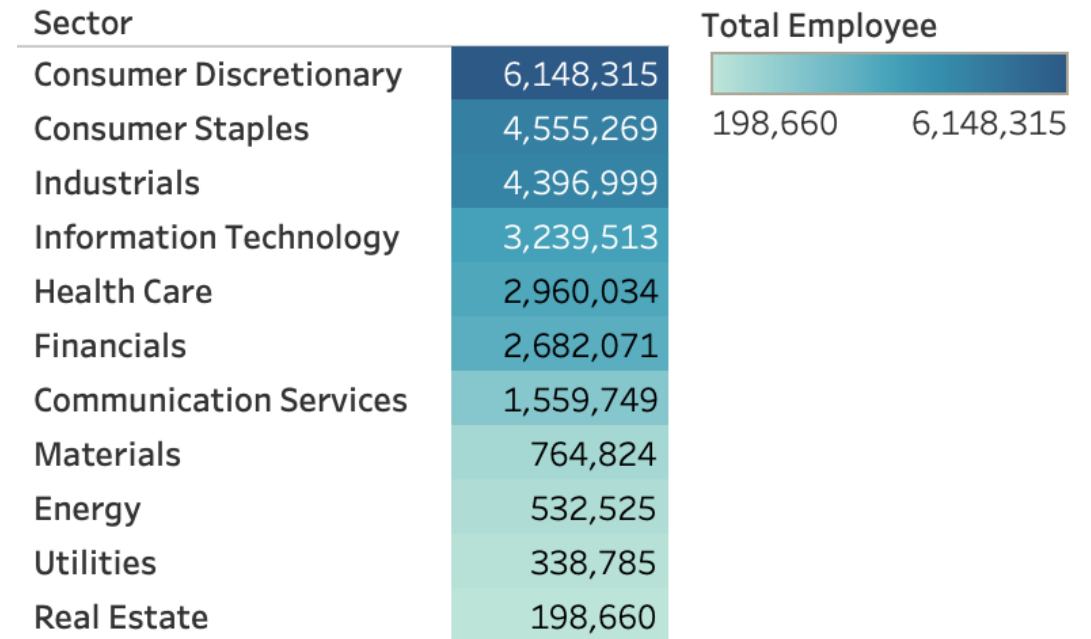
Employee

Walmart Inc. has the highest number (= 2,300,000) of employees;

Host Hotels & Resorts Inc. has the lowest number (= 163) of employees;

Consumer Discretionary sector has the largest number of employees while Real Estate sector has the smallest number.

Employee by Sector



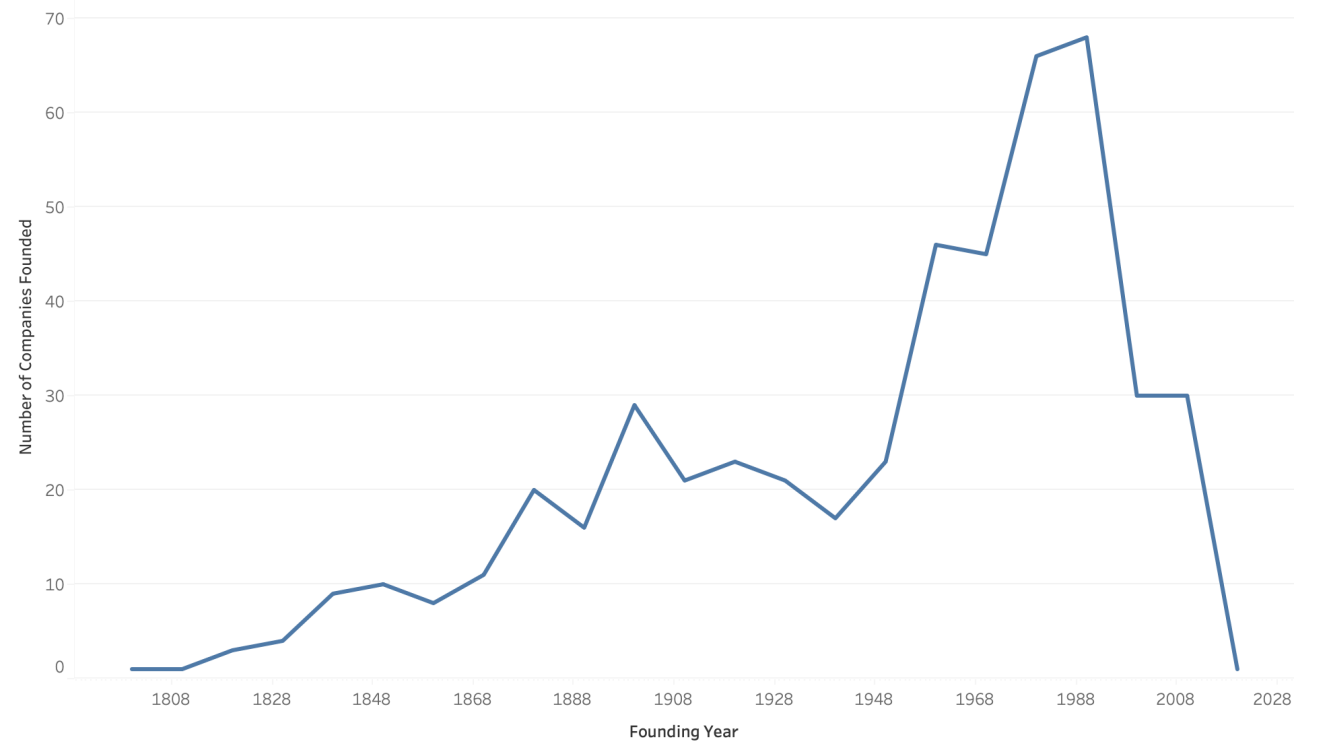
Total Employee broken down by Sector.
Color shows the Total Employee number.
The marks are labeled by Total Employee.

Founding Year

Out of the 505 companies, 53 were founded after the Year of 2000 and 196 were founded before the Year of 1950;

There was a surge of establishing companies starting from 1948, which was around the time WWII ended (1945).

Number of Companies Founded by Year

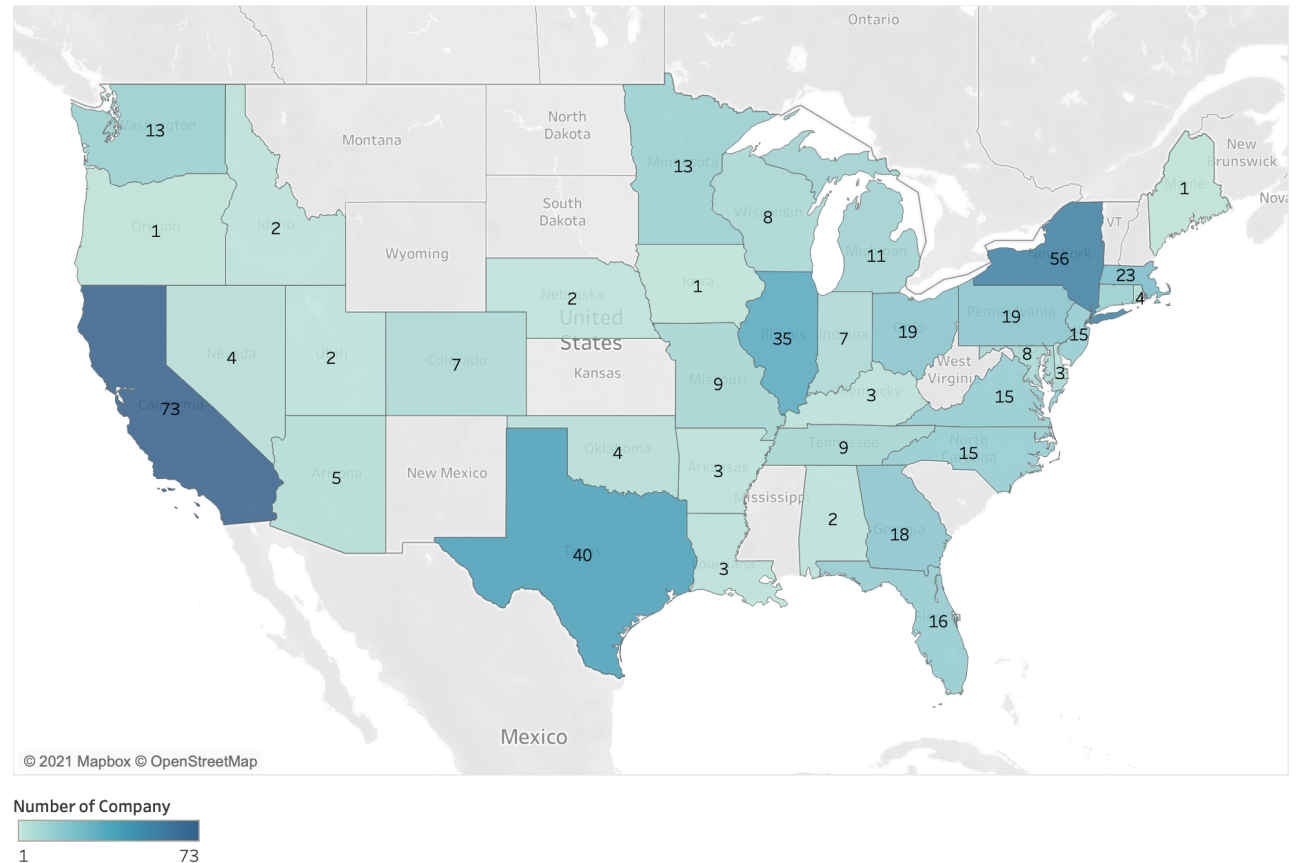


Headquarter

There are 44 distinct headquarters for the S&P 500:

- 38 headquarters are inside of the U.S.
 - California, New York, and Texas are the top 3 states with the largest number of companies founded in
- 6 headquarters (Bermuda, England, Ireland, Netherlands, Switzerland, UK) are outside of the U.S.

Company by Headquarter

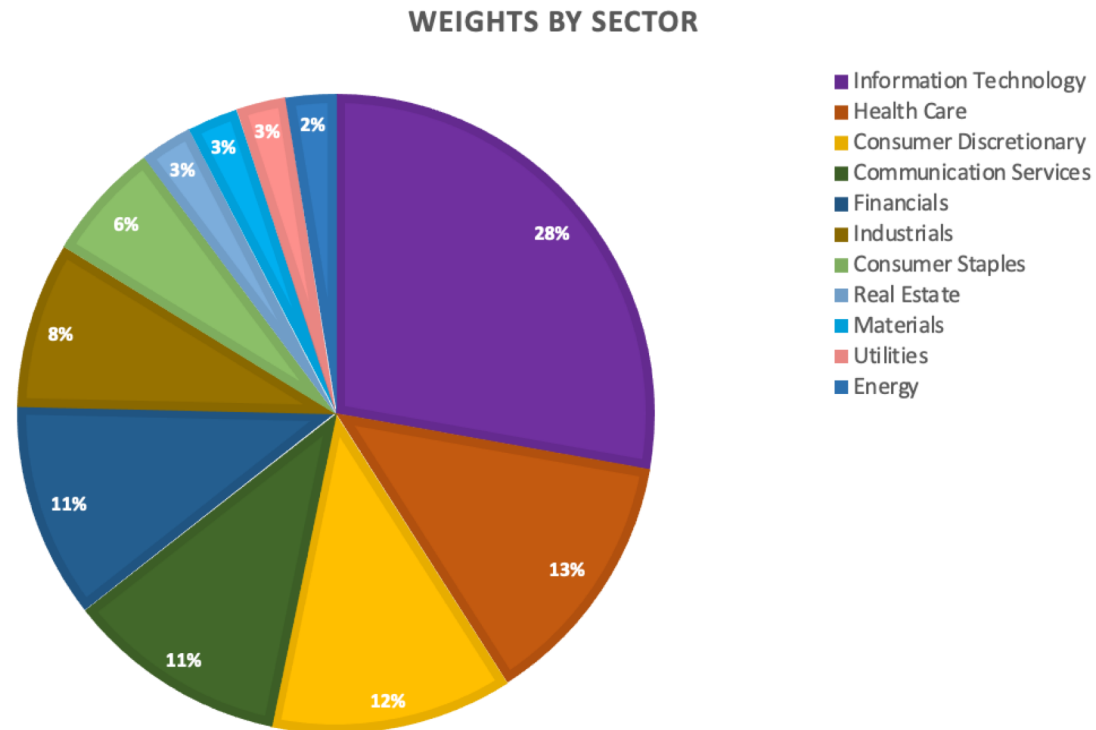


Weight

Market capitalization (= stock price x total number of outstanding shares) determines the S&P 500 weights

- Company with a larger market capitalization weighs more

Information technology sector has the largest weight compared to other sectors.



Stock Price

(updated on 9/21/2021)

1. Range
2. Max, Min
3. Median, Mean
4. Average by Sector

For all companies:

- The **maximum** stock price is \$5031.4 from NVR inc. ;
- The **minimum** stock price is \$11.74 from Amcor PLC ;
- The **range** is \$5019.66;
- The **average** stock price is \$203.1 and the **median** stock price is 114.45;
- Around 27% of companies have a stock price that is equal to or above the average price;

Average Price by Sector

Sector	
Consumer Discretionary	364.1
Communication Services	331.4
Health Care	279.2
Information Technology	214.4
Industrials	170.3
Real Estate	156.4
Financials	153.7
Materials	128.1
Consumer Staples	105.1
Utilities	72.0
Energy	48.8

The top 3 sectors with the highest average stock prices are:

1. **Consumer Discretionary (\$364.1)**
2. **Communication Services (\$331.4)**
3. **Health Care (\$279.2)**

Financials

1. Earnings per Share
2. Price to Earnings
3. Price to Book
4. Price to Sale
5. Dividend Yield
6. Gross Profit Margin
7. Dividends
8. Free Cash Flow
9. Debt to Equity

Earnings per Share (EPS)

- We want a consistent and steady growth of earnings on a yearly basis (from 2019 to 2021)
- 53 companies satisfied!

Price to Earning (P/E)

- We want a P/E lower than or equal to 20
- 196 companies satisfied!

Price to Book (P/B)

- We want a P/B lower than the sector average
- 373 companies satisfied!

Price to Sale (P/S)

- We want a P/S lower than the sector average
- 340 companies satisfied!

Dividend Yield (DY)

- We want a DY greater than the S&P 500 average
- 213 companies satisfied!

Gross Profit Margin

- We want a Gross Profit Margin higher than the sector average
- 230 companies satisfied!

Dividends

- We want a consistent and steady growth of dividends on a yearly basis (from 2019 to 2021)
- 43 companies satisfied!

Free Cash Flow (FCF)

- We want a FCF higher than the sector average
- 206 companies satisfied!

Debt to Equity (D/E)

- We want a D/E lower than the sector average
- 94 companies satisfied!



Stock Candidates

No stock satisfied the desirable criterion for all 9 indicators!!!

But, 2 stocks met the requirements for the first 8 indicators

- Amcor PLC (AMCR) → \$11.74
- Best Buy Co. Inc. (BBY) → \$106.82

Both stocks are great investment options to consider.