# Stock Portfolio Selection Based on Factor of Market Capitalization and Profit Margin

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**Abstract:** Energy plays a vital role in our world, and energy stocks are promising in the stock market. In this paper, we selected 12 energy stocks and made a table to analyze their risk, profit margin and market, and summarized the advantages and possible development of energy stocks in the future

The remainder of the article is organized as follows. In Section 2, we present the data of the investment project. In Section 3, we sorted out the data of nine companies into tables and analyzed them one by one from three perspectives: risk, profitability, and market. Finally, the conclusion is presented in Section 4.

## 1. Introduction

Stock portfolio refers to a process in which investors select and match equities based on particular laws and principles that take into account the risk level and profitability of various stocks in order to minimise investment risk [1-3].

Asset management includes stock investment management. As a result, there are two reasons to build a stock portfolio: the first is to lower the risk of securities investment, and the second is to maximize the return on securities investment. Individual asset management differs from portfolio management as an investment idea. In building a portfolio, diversification is needed to minimize the adverse impact of a few securities.

Stocks, like other financial instruments, come with hazards. The uncertainty of the projected return on investment is referred to as risk. A stock's or a portfolio of stocks' risk is usually calculated. The variance of a stock portfolio is made up of the variation of the stocks in the portfolio as well as the covariance between them. A portfolio's expected return is a weighted average of each stock's predicted return. To put it another way, portfolio investing allows you to decrease or remove the risk posed by the characteristics of individual stocks (non-systemic risk) and only assume the risk posed by the factors that affect all stocks' returns (systemic risk).

One of the goals of stock portfolio management is to optimize investors' returns through diversified stock investments while staying within their risk tolerance. According to market experience, industrial policies and fundamentals have a significant impact on a single company, and the resulting income fluctuation is typically quite big. It may bring significant benefits to investors during a period of rapid growth in the company's performance, but it may cause significant losses to investors if the stock price falls sharply due to information not noticed by investors. Therefore, under a given risk level, through diversified stock selection, we can reduce the excessive fluctuation of stock price to a certain extent, so as to obtain the maximum return in a long period of time.

## 2. Data

The goal of our research is to invest in energy equities. What are the distinctions between the various energy companies? Take the energy stock market's basic value as a starting point and measure the overall stock market from there.

There are a variety of motivations to invest in energy and related industries and businesses [9-10]. Energy will always be in demand; its consumption is predicted to increase; investing in energy allows you to determine your future while profiting. From the inside, a few tidbits.

Energy is the most valuable market segment on the earth, with a market value of $7 trillion. Providing useable energy to 7 billion people worldwide and accounting for 10% of global GROSS domestic product.

Nine of the top ten revenue-generating corporations in the world are in the energy industry. This is due to the fact that energy can be found in all places. It is required for all human endeavors. Energy is a great place to invest because it generates more money than any other business.

Global energy demand is expected to increase by more than 30% by 2035, according to the International Energy Agency. Two-thirds of that growth will come from China, India, and the Middle East. Global oil demand will have climbed from 89 million barrels per day in 2012 to around 100 million barrels per day by then, as the number of cars on the road doubles to 1.7 billion. More importantly, by that time, oil is predicted to have risen to $125 per barrel. Demand for electricity is forecast to grow twice as fast as total energy consumption, with electricity prices rising 15% by 2035.

We selected nine stocks and summarized their data for analysis

FuelCell Energy, Inc., together with its subsidiaries, designs, manufactures, sells, installs, operates, and services stationary fuel cell power plants for distributed baseload power generation. The company primarily operates in the United States, South Korea, England, Germany, and Switzerland.

FuelCell Energy, Inc. was founded in 1969 and is headquartered in Danbury, Connecticut.

Energy Transfer LP is a company that offers energy-related services. The corporation owns and operates 9,400 miles of natural gas transportation pipes in Texas, as well as three natural gas storage facilities, and 12,340 miles of interstate natural gas pipelines. Electric utilities, independent power plants, local distribution firms, industrial end-users, and other marketing companies are among the natural gas customers.

Bloom Energy Corporation designs, manufactures, and sells solid-oxide fuel cell systems for on-site power generation in the United States, Japan, China, India, and the Republic of Korea. It serves hospitals, healthcare companies, retailers, and data centers. Bloom Energy Corporation was incorporated in 2001 and is headquartered in San Jose, California.

BP (official English full name: BP p.l.c., formerly known as British Petroleum, afterwards referred to as the official name) is one of the world's major private oil firms (i.e., one of the seven sisters of international petroleum) and one of the top ten private enterprise groups. BP is one of the world's largest petroleum and petrochemical corporations. It is one of the world's largest oil and petrochemical group companies, formed through the merger and reorganization of erstwhile BP, Amoco, ACO, and Castrol.

Royal Dutch Shell(RDS.A):It is a major international producer of oil, natural gas and petrochemical industry, has interests in more than 50 refineries in more than 30 countries, and is a major seller of petrochemical industry, road transportation fuel (about 50000 gas stations around the world), lubricating oil, aviation fuel and liquefied petroleum gas.

Total (TTE): Total energy is a diversified energy company that produces and sells energy products including oil, biofuels, natural gas, green gas, renewable energy and electricity all over the world. The company's 105000 employees are committed to making more people enjoy cleaner, cheaper, more reliable and more accessible energy.

ConocoPhillips: ConocoPhillips is a diversified oil and natural gas producer with operations all over the world. It produces oil and natural gas using a variety of methods.

NextEra Energy: One of the country's largest electric utility businesses, NextEra Energy is a global leader in wind and solar energy production, as well as providing renewable energy to other utilities and end-users around the country.

TC Energy is one of North America's largest natural gas pipeline operators, as well as one of the country's top power producers, with a concentration on nuclear and renewable energy.

## 3. Result and analysis

Energy Transfer has less risk in terms of stock size because small-cap stocks like fuel cell energy and Bloom Energy usually have more volatility in their stock price than the large-cap stocks. While ET also has a lower beta, it has a lower market risk than the other two stocks at 4.65 and 3.66, respectively.

BEC poses the greatest risk to debt ratios. A debt ratio of 94.58 gives them no chance to reinvest if they fail. Both FCEL and ET are around 65%, but FCEL's current ratio and quick ratio are higher than ET's because FCEL wants to keep more cash on hand. So FCEL is a little bit better than ET about risk.

The profitability of ET is much higher than that of FCE and BEC. FCEL and BEC even lost a lot of money.

Table 1. Risk ratio of BEC. FCEL and BEC.

| Companies name | Stock Price | PE ratio | PEG ratio | Book ratio | Dividend yield | Momentum | Stock buyback | insider buying |
|---|---|---|---|---|---|---|---|---|
| FCEL | 9.53 | 23.93 | | 523 | | -1.53 | 21.54B | 39066 |
| ET | 9.04 | 6.09 | 0.13 | 1.12 | 6.75% | 028 | 25B | 3179500 |
| BEC | 28.34 | 312.50 | | -104.96 | | -417 | | -181759 |

Table 2. Profitability ratio of BEC. FCEL and BEC.

| Companies name | Market Capitalization | Beta | Debt ratio | Current ratio | Quick ratio |
|---|---|---|---|---|---|
| FCEL | 4.177B | 4.65 | 62.80% | 3.97 | 3.10 |
| ET | 24.705B | 2.29 | 67.01% | 0.92 | 0.77 |
| BEC | 5.992B | 3.66 | 98.58% | 1.70 | 1.09 |

Table 3. Market ratio of BEC. FCEL and BEC.

| Companies name | Profit margin | asset turnover | ROA | ROE |
|---|---|---|---|---|
| FCEL | -131.80% | -42.86% | -5.64 | -0.22 |
| ET | 8.59% | 72.41% | 5.56 | 18.45 |
| BEC | -18.00% | 12.82 | -4.54 | -819.67% |

Table 4. Risk ratio of BP, RDS.A and TTE.

| Companies name | Market Capitalization | Beta | Debt Ratio | Current Ratio | Quick Ratio |
|---|---|---|---|---|---|
| BP | 912.4 | 0.90 | 11.69% | 5.76% | 5.08% |
| RDS.A | 1703.3 | 1.02 | 59.22% | 1.26% | 1.03% |
| TTE | 1281.6 | 1.10 | 60.14% | 1.23% | 1.00% |

ET has a lower PE ratio and Book ratio than FCEL and BEC, and the insider buying of ET is bigger, while BEC even sells a lot of stocks. So ET is a better choice. Also, ET has a big insider buying which means the price of the stock will probably increase.

BP's solvency is the best because its current ratio is the highest, which also proves that its current assets are considerable compared with its liabilities. The quick ratio of BP stores is also the best, which can more intuitively see a company's solvency than the current ratio. Because inventory is also subtracted from current assets, BP's long-term and short-term solvency are very good. In addition, the current ratio and quick ratio of RDS. A and TTE are not very impressive. It can also be seen from their two high debt ratios that the high debt and low solvency may cause the two companies to have great pressure or lose their credit. But the cash flow of these two companies will be more substantial than BP.

The better the profitability of firms using all assets, the higher the net profit margin of assets; the weaker the profitability of enterprises using all assets, the lower the net profit margin of assets. The net asset profit of RDS. A is relatively high, and the values of BP and TTE are comparable. The Roe rate is calculated by dividing a company's after-tax profit by its net assets. This indicator reflects the income level of shareholders' equity and is used to measure the efficiency of the company's use of its own capital. The higher the index value, the higher the return brought by the investment. This indicator reflects the ability of self-owned capital to obtain net income. Therefore, it can be seen that BP's own capital profit is relatively high, and TTE's own capital profit is very low or negative, indicating that it has been losing money. Because of the impact of covid-19 and the collapse of commodity prices, the total has suffered Hugh losses. If I choose to buy stocks, I may choose BP because BP is relatively stable in all aspects.

Table 5. Profitability ratio of BP, RDS.A and TTE.

| Companies name | Profit margin | Asset turnover | ROA | ROE |
|---|---|---|---|---|
| BP | 19.9382 | 0.1322 | 1.89% | 7.03% |
| RDS.A | 18.5964 | 0.1506 | 2.19% | 5.29% |
| TTE | 34.086 | 0.166 | 1.62% | -6.89% |

Table 6. Risk ratio n of COP, NEE and TRP.

| Companies name | Market Capitalization | Beta | Debt ratio | Current ratio | Quick ratio |
|---|---|---|---|---|---|
| COP | 95.149B | 1.63 | 0.25 | 2.24 | 2.06 |
| NEE | 167.51 B | 0.26 | 0.64 | 0.47 | 0.37 |
| TRP | 48.97B | 0.77 | 3.03 | 0.51 | 0.38 |

According to the table, all of these 3 stocks are considered large-cap which is believed to be safer. NEE has the smallest Beta which is safer but has lower returns. Also, TRP debt ratio is 3.03 which is too high to borrow money, COP debt ratio is only 0.25 which suggests greater creditworthiness. Obviously, the COP has the highest current ratio and quick ratio, which refers that the COP is more likely to meet its liabilities which are due over the next 12 months, and it has better liquidity and overall financial health.

According to the table, TRP has a relatively higher profit margin which means it generates more profits from its sales. COP has the highest asset turnover which implies that it is more efficient in generating sales or revenues from its asset base. Also, COP has a relatively higher ROA and ROE than NEE and TRP, which means that COP is earning more money on less investment compared to NEE and TRP.

Table 7. Profitability ratio of COP, NEE and TRP.

| Companies name | Profit Margin | Asset turnover | ROA | ROE |
|---|---|---|---|---|
| COP | 12.72% | 0.57 | 3.76% | 6.94% |
| NEE | 14.40% | 0.12 | 1.33% | 3.87% |
| TRP | 15.02% | 0.13 | 3.50% | 6.31% |

Table 8. Market ratio of COP, NEE and TRP.

| Companies name | Stock price | PE ratio | PEG ratio | Book Ratio | Dividend Yield | Momentum | Stock buyback | Insider Buying |
|---|---|---|---|---|---|---|---|---|
| COP | 72.36 | 9.68 | 9.68 | 2.16 | 2.54% | -6.63 | -2.224B | 4 purchase 36782 shares 3 sales 18179 shares |
| NEE | 86.31 | 31.06 | 3.52 | 4.57 | 1.78% | -025 | no stock back | 3 purchase 8255 shares 5 sales 35468 shares |
| TRP | 49.65 | 14.47 | N/A | 2-09 | 5.66% | -1.42 | no stock back | 0 transactions |

According to the table, COP has the lowest PE ratio which suggests high expectations for future growth, this firm also has the biggest PEG which means it is overvalued. NEE has a higher book ratio which means it's overvalued, TRP has the highest dividend yield which means it provides more income but also higher risks. COP has the lower momentum, and there's more insider purchasing than sales in COP.

RDS. A is the best investment of the nine stocks. Its investment prospects are excellent. According to the target price forecast of each institution in the past six months, the current stock price is lower than the lowest target price given by the institution of $56, indicating that the stock price is far lower than the institution's estimate. In the long run, the stock price is relatively conservative. The probability of future rise is greater.

## 4. Conclusion

Investing is a difficult science. Investment results will be influenced by the evaluation and understanding of investment targets, the control and avoidance of investment risks, and the control of investment mentality. Our crew gained an understanding of popular investment products and mastered the basic value of investment concepts by studying the global financial market. Our examination focused on the energy industry's stock market. As countries like China and India continue to develop, there will be plenty of future demand both for existing energy sources like oil and gas as well as growing needs for alternative sources. For this reason, the energy industry has the potential for high dividends or company growth.

In addition, analysis of different governments' policies on the industry needs to be improved. Governments intervene in all energy markets—exploration, production, distribution, and consumption—and carry out the intervention in many different ways. All these factors have an impact on the volatility of the stock market. Finally, our research on investing in energy stocks is meaningful because of the excellent prospects for energy stocks. The energy sector is vital to the global economy because it provides the fuel and power needed to drive trade and travel. Companies participating in the renewable energy sector will play an important role in the future as technology advances and demand for clean energy develops. Furthermore, renewable energy is the solution to combating global climate change. Thus, investing in renewable energy is a good long-term strategy.

Furthermore, we understand the responsibilities and functions of financial institutions, core valuation methods, asset pricing models, financial anomalies and market risks, various product valuations, and investment strategies in the project. By investigating the data of several stocks in the energy industry, we evaluated the risk, profitability, market risk of 12 stocks. Through calculating and analyzing the important ratios such as Beta, current ratio, ROA, ROE, and PE ratios, etc. Eventually, our group screened out 3 stocks that are relatively worth investing in. Indeed, there are definitely some improvements to our project that need to be done in the future. To illustrate further, our judgment on the relationship between stocks and investors needs to be more specific. For instance, we should focus on analyzing what kind of investors would invest in these different stocks.

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