

Profitability Analysis and Comparison between Twelve Selected Energy Stocks

Xiyan Cao^{1, a, †}, Jialun Li^{2, b, †}, Yiqian Chen^{3, c, †}, Taiqi Zhu^{4, d, †}

¹Chengdu Shishi Cambridge High School, Chengdu, 610000, China

²Bridgeway Academy, Catasauqua, 18032, United States

³Pitzer College, Claremont, 91711, United States

⁴Dalian No.1 Middle School, Dalian, 116000, China

*Corresponding author: ^acaoxiyan@shishialevel.com, ^b161847136@masu.edu.cn, ^clisachenhuhu@163.com, ^dtaylorzhu666@163.com

[†]These authors contributed equally

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Abstract: This paper aims to analyze the advantages and disadvantages of the twelve selected energy stocks by calculating and comparing the profitability ratios, risk ratios, and other profitability indicators. In the end, a conclusion of the most profitable stock among the twelve will be stated and logical connections will be provided. The twelve selected stocks are Petróleo Brasileiro S.A., Marathon Petroleum Corporation, China Petroleum & Chemical Corporation, MeiJin Energy, Wen Shan Electricity, Yong Tai Energy, Exxon Mobil Corporation, Royal Dutch Shell plc, Enterprise Products Partners L.P., Chevron Corporation, Total Energies SE, and Petro China Company Limited as our twelve stocks to analyze.

1. Introduction

Energy is the keystone of the entire society, it fulfills the everyday need of all individuals such as light sources, food production, transportations, etcetera. Without the energy sector's continuous energy supply, all the productions require machinery will shut down immediately, resulting in a destructive economic shock worldwide. Thus, all governments around the globe pay the most attention to the energy industry. As long as worldwide industry pauses do not occur, such long-term stable demand for energy will eventually result in profit for the investors of the energy industry. The stocks in the energy industry maintain high stock prices for a long period. Big companies like Chevron Corporation remain tremendous profits, which is also caused by the increasing demand for oil and natural gas. With large prospects as the energy industry have, it is worthy for us to research and exploit the value of the energy industry and those stocks within the industry.

In this paper, risk ratios, profitability ratios, and market ratios will be utilized to forecast the future benefits of each stock. These ratios are calculated with the data provided by the balance sheet and financial statement of each firm. The twelve selected stocks will be divided into four sections (three stocks per section) to compare and analyze. In the end, the most profitable stock would be determined.

Risk ratios include beta value, debt ratio, current ratio, and quick ratio. The beta value represents the deviation of the stock to the market. The systematic risk of stock as measured by its market model beta is indeed a relevant measure of risk. Beta is reliably related to the return of the stock conditional on the sign of the market risk premium [1-3]. The debt ratio is the proportion of the total liability to the total asset of a firm. The current ratio (CR) is a company's ability to pay off short-term debt with the current assets of the company. Ang stated that the high CR value of a company will reduce uncertainty for investors [4-5]. A quick ratio is a complement to the current ratio in analyzing liquidity. The difference between the current ratio and the quick ratio is only in the calculation of the quick ratio by ignoring the inventory in the calculation [6].

Profitability ratios include profit margin, ROA, and ROE. Profit Margin is the measure of the ability of a firm to generate income per unit of sale. The greater the ratio of net profit margin, the better for being role in the company's ability to profit quite high. The higher net profit margin (NPM) showed that increasing the company achieved net profit to net sales [7-8]. ROE, or return on equity, measures the income a firm can generate per unit of asset. The higher the value the higher the ROE level of profit generated due to additional working capital that can be used to finance the company's operations that could ultimately result in profit, [9]. Return on Assets (ROA) is one of the profitability ratios, is the ratio that shows how effective the company operates to produce a profit [10].

Market ratios include the P/E ratio, P/B ratio, and PEG ratio. The P/E ratio is the price-to-earnings ratio and the P/B ratio is the price-to-book ratio. The low value in both of these two ratios represents the stock is being underestimated by the market.

2. DATA

The first section of stocks includes Petróleo Brasileiro S.A., Marathon Corporation, and China Petroleum & Chemical Corporation. Petróleo Brasileiro S.A. (PBR), also known as Petrobras, is a Brazilian corporation headquartered in Rio De Janeiro, Brazil. Their operations mainly focus on the refining, exploration, transportation, and distribution of their products, which include crude oil, natural gas liquid, biofuel, etc. Next, Marathon Petroleum is an American corporation headquartered in Findley, Ohio. Similar to PBR. The majority of their operations are the production, transportation, and marketing of crude oil. However, MPC's products are not as diverse as PBR. Which is one reason that causes Marathon to have a lower market capitalization than PBR. Lastly, China Petroleum and Chemical Corporation (also known as Sinopec), is a Chinese corporation headquartered in Beijing, China. The products and operations are tremendously similar to PBR and MPC, SNP's business is also mainly focused on the refining, exploring, transporting, and distributing of crude oil, natural gas liquid, biofuel, and other petrochemicals [11-12].

The second section of stocks contains Mei Jin Energy, Wen Shan Electricity, and Yong Tai Energy. All of these are state-owned enterprises in China. First, Mei Jin Energy is coke production as the main business of energy listed companies, compared with listed companies in the same industry, the company belongs to the state's key support for environmental protection standards, advanced equipment, the production scale of large and medium-sized coke enterprises, with strong anti-risk capacity. Secondly, Wen Shan Electricity has acquired small hydropower in Wen Shan state in recent years, and the company has begun supplying electricity to neighboring Vietnam. Its range of power supply is gradually expanding. In addition, Yong Tai Energy has three different businesses: power, coal, and petrochemical [13].

In the third section, Exxon Mobile Corporation, Royal Dutch Shells, and Enterprise Products Partners L.P. are included. The Exxon Mobil Corporation (XOM), is one of the world's leading oil and petrochemical companies, founded by John D. Rockefeller in 1882 and headquartered in Irving, Texas, United States. The Royal Dutch Shell (RDS) is the second-largest oil company in the world. It was founded in 1907 after the merger of Royal Dutch Petroleum and Shell. Enterprise Products Partners L.P. It is one of the largest publicly traded partners in North America and a leading provider of midstream energy services to producers and consumers. These three companies almost all have the main business the scope on the side of fuel, natural gas, oil, petroleum, etc.

Lastly, the fourth section involves Chevron Corporation, Petro China, and Total Energies SE. Chevron Corporation is one of the largest transnational energy companies throughout the world, which is located in San Ramon, California. The line of business engaged in every aspect of the oil and natural gas industries, including hydrocarbon exploration and production; refining, marketing and transport; chemicals manufacturing and sales; and power generation. The second one was Petro China Company Limited (PTR), which is one of the biggest energy companies in China which has caused the stock price to fall below the IPO price. The mainland enterprise announced its plans to issue stock in Shanghai in November 2007 and subsequently entered the constituent of SSE 50 Index. Thirdly, Total Energies is an energy company from France, and also one of the companies that own

the most market value in Europe. Its businesses cover the entire oil and gas chain, and international crude oil and product trading. Total Energies is also a large-scale chemicals manufacturer.

3. Risk ratios

To analyze the risk ratios of these twelve stocks, data are collected from the financial statements of each firm, and Beta, debt ratio, and current ratio are used to analyze the risk ratios of the three stocks.

Table 1 shows that amongst PBR, MPC, and SNP, SNP has the lowest beta value of 1.04, PBR and MPC has 1.39 and 2.08 respectively, indicating that SNP does not deviate from the market as much as the other two stocks, which represents lower volatility and lower market risk. SNP also has the lowest debt ratio of 0.491, SNP and MPC are 0.685 and 0.656 respectively, meaning that SNP is less likely to fall into a debt crisis than the other two firms. Besides the beta and debt ratio, the current ratio is also an important indicator to measure risk, it measures the ability of a firm to pay off its short-term obligations. In this case, MPC has the highest current ratio of 1.806, PBR and SNP have 1.044 and 0.872 respectively. This shows that MPC is more stable in short-term debt payments than the other firms. Overall, the risk ratio in SNP is lower than MPC and PBR because it has the lowest beta value and debt ratio and a fairly high current ratio.

Table 1. Risk Ratios of PBR, MPC, and SNP.

Name	Market Capitalization(\$)	Beta	Debt ratio	Current ratio
Petróleo Brasileiro S.A. (PBR)	66.721B	1.39	0.69	1.04
Marathon Petroleum Corporation (MPC)	40.506B	2.08	0.66	1.80
China Petroleum & Chemical Corporation (SNP)	73.737B	1.04	0.49	0.87

Table 2 reflects that among these three stocks, Wen Shan has the lowest beta value of 0.53 indicating that it does not deviate from the market as much as the other two stocks, leading to lower volatility and lower market risk. However, Mei Jing has the lowest debt ratio of 0.0507, meaning that Wen Shan is less likely to fall into a debt crisis than Mei Jin and Yong Tai. Meanwhile, Yong Tai has the highest current ratio of 1.300 among the three stocks. This means that Yong Tai is more stable in short-term debt payments than the other firms. Overall, Mei Jin has the lowest risk ratio among the three stocks.

Table 2. Risk Ratios of MeiJin, WenShan, and YongTai.

Name	Market Capitalization (¥)	Beta	Debt ratio	Current ratio
MeiJin Energy (000723)	257.22B	0.78	0.05	0.48
WenShan Electricity (60095)	9.67B	0.53	0.37	1.29
YongTai Energy (600157)	3.75B	0.62	0.56	1.30

Table 3 illustrates that among these three stocks, XOM has the highest current ratio because the current ratio has the highest value of 1.11, which is close to XOM with 0.9. In contrast, the EPD ratio is too low with 0.4605, even below 1, and the company may have some difficulties with insolvency. The beta ratio is related to the risk. The XOM takes the largest risk because of the highest beta value at 1.33. EPD has the second largest with 1.32 and 1.05 is beta of RDS which has the lowest risk. Besides, we can see EPD has the highest debt ratio at 114.89%, RDS has the second largest one at 59.22% and XOM has the lowest value at 33.79%. Overall, RDS has the lowest risk ratio.

Table 3. Risk Ratios of XOM, RDS, and EPD.

Name	Market Capitalization(\$)	Beta	Debt ratio	Current ratio
Exxon Mobil Corporation (XOM)	268.47B	1.33	0.34	0.9
Royal Dutch Shell (RDS)	258.48B	1.05	0.59	1.11
Enterprise Products Partners L.P. (EPD)	50.87B	1.32	1.15	0.46

Table 4 shows that among these three stocks, PTR has the lowest beta at 0.86, which means PTR earns the fewest money from the market. However, Chevron has to face the highest risk with 1.28. And the debt ratio remains the highest in TTE with 59.87% as well as the current ratio which is below 1, so it seems like Total Energies is facing some solvency problems. Overall, the risk ratio in CVX is the lowest.

Table 4. Risk Ratios of CVX, PTR, and SE.

Name	Market Capitalization (\$)	Beta	Debt ratio	Current ratio
Chevron Corporation (CVX)	221.97B	1.28	0.27	1.28
PetroChina Company Limited (PTR)	133.15B	0.86	0.37	0.9
Total Energies SE (TTE)	16.26B	1.12	0.60	0.16

In conclusion, from these four sections, the stocks with the lowest risk ratio in these sections are SNP, MeiJin, RDX, and CVX. Among these stocks, RDS has the highest market capital with 258.478B. The beta value of MeiJin is the lowest with 0.7751. Meanwhile, the debt ratio in MeiJin is lower than other stocks with 0.0507. And the current ratio in CVX is the highest at 1.28. Therefore, MeiJin has the lowest risk ratio among all the stocks

4. Profitability Ratios

In the table below, information about the profitability ratio of 12 stocks is presented. This article evaluates them with 3 indicators, including profit margin, ROA (Returns on Assets), and ROE (Returns on Equities). For the profit margin, except the MPC (-0.141) and the XOM(-0.043), the remaining stocks all show a benefited profit margin value, which means these 10 stocks will bring benefits. WenShan Electricity shows the highest value (0.2098) while SNP shows the positive lowest value (0.016). So in these 12 stocks, WenShan Electricity and SNP can earn the most and least respected. In these 12 stocks, MeiJin has the highest value of ROA (0.112) and ROE (0.2662), it can generate more net income per unit of asset and more net income per unit of shareholder equity. On the other hand, RDS (-0.014) and MPC (0.115) represent a negative number of ROA, while MPC (-0.336) and XOM (-0.0346) represent negative data of ROE, besides these three, other 9 stocks can earn profit from the market.

For the first section, PetroBras has the highest profit margin of 0.021 (Marathon: -0.141; Sinopec: 0.016), this shows that out of the three firms, PetroBras' products can generate the most profit. Sinopec, with the highest ROA of 0.019 (PetroBras: 0.006; Marathon: -0.115) and the highest ROE of 0.037 (PetroBras: 0.019; Marathon: -0.336) among the three stocks, also appears to be relatively profitable because Sinopec can generate more net income per unit of asset and more net income per unit of shareholder equity. On the other hand, Marathon Petroleum, has a negative value of all three of these indicators, meaning that the firm is not gaining economic profit.

Table 5. Profitability Ratios of PBR, MPC, and SNP.

Name	Profit Margin	ROA	ROE
Petróleo Brasileiro S.A. (PBR)	0.02	0.006	0.019
Marathon Petroleum Corporation (MPC)	-0.14	-0.12	-0.336
China Petroleum & Chemical Corporation (SNP)	0.016	0.019	0.037

In the second section, ROA, the higher the indicator, the better the use of corporate assets. ROE, the higher the indicator value, the higher the return on investment. Both ROA and ROE in Mei Jin were the highest among these three stocks, with 9.18% and 18.73% respectively.

Table 6. Profitability Ratios of Mei Jin, Wen Shan, and Yong Tai.

Name	Profit Margin	ROA	ROE
MeiJin Energy (000723)	0.027	0.112	0.266
Wen Shan Electricity (60095)	0.21	0.029	0.13
Yong Tai Enegy (600157)	0.021	0.048	0.063

For the profitable ratios of the third section, EPD has the highest profit margin of 11% (RDS-A: 2.1%), while XOM shows a negative value of profit margin (-2.43%), so EPD can get highest benefits and XOM will not get profit in the market. RDS-A, with the only negative ROA (-0.014) so it cannot get profit in more net income per asset. For the ROE value, EPD is the largest (0.1463) and XOM is negative. So EPD earn the largest profit per equity and XOM will lose profit.

Table 7. Profitability Ratios of XOM, RDS, and EPD

Name	Profit Margin	ROA	ROE
Exxon Mobil Corporation (XOM)	-0.024	0.025	-0.035
Royal Dutch Shell (RDS)	0.02	-0.014	0.029
Enterprise Products Partners L.P. (EPD)	0.11	0.055	0.15

For the profitable ratios of the fourth section, the profit margin remains the highest in Chevron Corporation (7.36%), closely followed by the one in Total Energies (6.36%). ROA and ROE are both higher in Chevron (0.0353) and Total Energies (0.036) than those in Petro China (0.0232), so they are able to earn more money from their assets.

Table 8. Profitability Ratios of CVX, PTR, and TTE.

Name	Profit Margin	ROA	ROE
Chevron Corporation (CVX)	0.074	0.035	0.074
Petro China Company Limited (PTR)	0.035	0.023	0.077
Total Energies SE (TTE)	0.064	0.036	0.104

5. Market Ratios

All three stocks in section one have a P/E ratio that is lower than 10. But only Petro Bras and Sinopec have a P/B ratio lower than 1, Marathon's P/B ratio is 1.44. This means that both Sinopec and Petro Bras' stock prices are undervalued while Marathon Petroleum's stock price is somewhat overvalued. Thus all value investors would be interested in Sinopec and Petro bras, only P/E value investors would choose to invest in Marathon Petroleum and P/B value investors would not. Growth investors would invest in stocks that have a lower PEG ratio than 1. Clearly, Petro Bras and Sinopec will be invested by growth investors, but Marathon Petroleum will not. Momentum investors would invest in all three of the firms.

Table 9. Market Ratios of PBR, MPC, and SNP

Name	P/E Ratio	P/B Ratio	PEG Ratio
Petróleo Brasileiro S.A. (PBR)	2.70	0.98	0.84
Marathon Petroleum Corporation (MPC)	4.63	1.44	15.65
China Petroleum & Chemical Corporation (SNP)	5.54	0.50	0.49

In the second section, it is other indexes or market indexes. Wen Shan is much higher than other stocks in P/E with 616.71. By contrast, only 7.77 in Yong Tai. Mei Jin has the highest ratio in P/B with 22.63 and Yong Tai only 0.92. Overall, value investors and momentum investors can invest in all these three stocks according to these data.

Table 10. Market Ratios of Mei Jin, Wen Shan, and Yong Tai.

Name	P/E Ratio	P/B Ratio	PEG Ratio
MeiJin Energy (000723)	28.45	5.45	0.29
Wen Shan Electricity (60095)	616.71	3.46	0.52
Yong Tai Enegy (600157)	7.77	0.92	0.23

For the market ratios of section three, according to the value of PE, P/B, and PEG ratio, if the PE of the stock is below 10 or the P/B of the stock is below 1, the value investor will buy this stock. When the PEG value of the stock is lower than 1, the PEG investor will buy. Due to this theory, the value investor will buy the RDS stock, and the PEG investor will not buy any stock from these three

because they cannot earn profit from it. Besides, results in the highest PE ratio of EPD, this company has the most satisfied expectancy for people.

Table 11. Market Ratios of XOM, RDS, and EPD.

Name	P/E Ratio	P/B Ratio	PEG Ratio
Exxon Mobil Corporation (XOM)	10.73	1.68	2.66
Royal Dutch Shell (RDS)	37.16	0.57	1.91
Enterprise Products Partners L.P. (EPD)	11.97	1.87	17.74

For the market ratios in section four, the PE ratio ranked first in Total Energies (12.42), referring to the highest stock price. And the PE ratios in Chevron (2.15) and Petro China (6.32) are low enough to attract value investors. But the PB ratios are all below 2 in the three companies (1.63, 0.42, 1.21) so value investors will be attracted. Petro China has the lowest PEG ratio at 0.17 as well, so it is attractive for growth investors. All these stocks are attractive for momentum investors.

Table 12. Market Ratios of CVX, PTR, and TTE.

Name	P/E Ratio	P/B Ratio	PEG Ratio
Chevron Corporation (CVX)	2.15	1.63	0.52
Petro China Company Limited (PTR)	6.32	0.42	0.17
Total Energies SE (TTE)	12.42	1.21	7.74

6. Discussion

After the analysis and comparisons between different ratios of the twelve selected energy stocks, a few conclusions regarding the profitability of the firms are formed. Among the twelve stocks:

The firm with the best asset utilization is China Petroleum and Chemicals Corporation (SNP), it has the highest inventory turnover rate (11.2), the highest receivable turnover rate (59.18), and the highest total asset turnover (1.22). Indicating that SNP can more efficiently utilize the available resource of the firm. (Average Inventory Turnover rate = 7.18, Average Receivable Turnover = 11.94, Average Total Asset Turnover = 0.59).

The firm which is the most capable of adjusting to the market is MPC, which has the highest current ratio (1.81) and the highest quick ratio (1.30). This indicates that Marathon has the highest liquidity and debt solvency. (Average current ratio = 0.97, Average quick ratio = 0.72)

The firm which performs the best at maintaining a low production cost is Mei Jin Energy. It has the highest ROA (0.11) and ROE (0.27) and both ROA and ROE measure the ability of a firm to minimize costs. (Average ROA = 0.02, Average ROE = 0.05)

The firm that earns the highest per-dollar profit is Wen Shan Electricity, which has the highest Profit Margin of 20.98%. (Average Profit Margin = 3.64%)

Value investors would choose to invest in PTR, China Petroleum and Chemicals (SNP), Chevron, and PBR because PTR and SNP have the lowest P/B ratios (0.42 and 0.5 respectively), Chevron and PBR have the lowest P/E ratios (2.15 and 2.7 respectively). (Average P/B Ratio = 1.68, Average P/E Ratio = 62.2 including the outlier of 616.71 (Wen Shan Electricity))

Growth investors would choose to invest in PTR, Yong Tai, and Mei Jin because these three have the lowest PEG ratios (0.17, 0.23, and 0.29 respectively). (Average PEG Ratio = 4.06)

7. Conclusion

In modern society, energy is becoming increasingly essential in all industries. So tremendous prospect it has, our team decided to analyze 12 stocks ranked highly in this industry from many aspects to choose the stock which was most valuable to invest. In this article, the risk ratios, profitability ratios, and market ratios were calculated, presented, and compared. Secondly, different types of potential investors of each stock are predicted. And most importantly, after analysis of

various ratios and abilities, a conclusion of the most profitable stock among the twelve that are selected is formed.

Among the twelve stocks we have selected, China Petroleum and Chemical Corporation (SNP) and Mei Jin Energy have the most potential profit in the future. These two firms can generate high profits while maintaining relatively low risks. SNP has the best asset utilization and the lowest P/E ratio which indicates it is the most under-valued stock. Mei Jin Energy has the lowest production cost and has the lowest PEG ratio which indicates the highest potential growth. Furthermore, all the other indicators of the two stocks are in the high profitable zone. Also, these two firms do not contain extreme outliers such as Wen Shan Electricity's P/E ratio (616.7).

A drawback of this article is that the utilized data are not up to date. Wall data incorporated in the paper are December 2020 because some firms have not yet posted their financial statements. This error may lead to the neglect of the changes that occurred in the stock market, which may not be conducive to our analysis and research. For future research plans, we may choose some more environmentally friendly and recyclable clean resources in the future according to the global trend. With the increasing influence of pollution and climate on the global scale, the use of clean energy, such as wind and solar energy, is bound to become a hot trend in the future, which will reduce the use of traditional energy such as oil and natural gas, and the market value of the twelve stocks studied in this paper will also decline. In the future, clean energy stocks will have more research value and investment value.

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