Energy Sector

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Chad Edward Kirksey
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Agenda

• Sector Overview
• Economic Analysis
• Business Analysis
• Financial Analysis
• Statistical Analysis
• Valuation Analysis
• Recommendation
Energy Sector

S&P 500

- Energy: 6.95%
- Industrials: 10.25%
- Consumer Staples: 10.40%
- Consumer Discretionary: 12.82%
- Health Care: 14.06%
- Materials: 2.88%
- Utilities: 3.42%
- Information Technology: 20.59%
- Telecommunication Services: 2.70%

SIM Portfolio

- Energy: 6.49%
- Industrials: 12.25%
- Consumer Staples: 11.56%
- Consumer Discretionary: 10.14%
- Health Care: 10.84%
- Utilities: 2.84%
- Information Technology: 22.77%
- Telecommunication Services: 2.91%
The Energy sector consists of companies engaged in the exploration, extraction and refining of coal, oil and natural gas.

Industries:
• Oil & Gas Refining & Marketing
• Oil Related Services & Equipment
• Oil & Gas Exploration & Production
• Oil & Gas Drilling
• Integrated Oil & Gas
• Coal
## Key Companies

<table>
<thead>
<tr>
<th>Name</th>
<th>Market Cap</th>
<th>Country</th>
<th>Subsector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exxon Mobil Corporation</td>
<td>$348.75B</td>
<td>United States</td>
<td>Integrated oil Companies</td>
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<td>Chevron Corporation</td>
<td>$178.62B</td>
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<td>PetroChina Company Limited</td>
<td>$121.05B</td>
<td>China</td>
<td>Oil &amp; Gas Production</td>
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<td>TotalFinaElf, S.A.</td>
<td>$110.49B</td>
<td>France</td>
<td>Oil &amp; Gas Production</td>
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<td>BP p.l.c.</td>
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<td>United Kingdom</td>
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<td>Schlumberger N.V.</td>
<td>$91.19B</td>
<td>France</td>
<td>Oilfield Services/Equipment</td>
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<td>China Petroleum &amp; Chemical Corporation</td>
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<td>China</td>
<td>Integrated oil Companies</td>
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<td>BHP Billiton plc</td>
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<td>United Kingdom</td>
<td>Coal Mining</td>
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<tr>
<td>ENI S.p.A.</td>
<td>$53.91B</td>
<td>Italy</td>
<td>Oil &amp; Gas Production</td>
</tr>
<tr>
<td>Occidental Petroleum Corporation</td>
<td>$52.33B</td>
<td>United States</td>
<td>Oil &amp; Gas Production</td>
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<tr>
<td>ConocoPhillips</td>
<td>$49.5B</td>
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<td>Integrated oil Companies</td>
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<tr>
<td>Statoil ASA</td>
<td>$48.34B</td>
<td>Norway</td>
<td>Integrated oil Companies</td>
</tr>
<tr>
<td>Phillips 66</td>
<td>$46.45B</td>
<td>United States</td>
<td>Integrated oil Companies</td>
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<tr>
<td>Suncor Energy Inc.</td>
<td>$42.82B</td>
<td>Canada</td>
<td>Integrated oil Companies</td>
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<tr>
<td>EOG Resources, Inc.</td>
<td>$40.86B</td>
<td>United States</td>
<td>Oil &amp; Gas Production</td>
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<tr>
<td>Petroleo Brasileiro S.A.- Petrobras</td>
<td>$35.22B</td>
<td>Brazil</td>
<td>Oil &amp; Gas Production</td>
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<tr>
<td>Emerson Electric Company</td>
<td>$34.98B</td>
<td>United States</td>
<td>Consumer Electronics/Appliances</td>
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<tr>
<td>Enbridge Inc</td>
<td>$34.62B</td>
<td>Canada</td>
<td>Natural Gas Distribution</td>
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<tr>
<td>Valero Energy Corporation</td>
<td>$30.97B</td>
<td>United States</td>
<td>Integrated oil Companies</td>
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</table>
Sector Performance

Energy vs S&P 500 (10-yr)

Energy vs S&P 500 (YTD)
Economic Analysis
United States

- Real GDP
- Labor
- Inflation
- US Dollar
- Interest Rates
International

- Europe & Japan
- China
- Brazil & Russia
Business Analysis
Business Cycle

- Inflationary Pressures
- Relative Performance of Economically Sensitive Assets
- Sector Analysis (Early, Mid, Late, Recession)
  - Financials
  - Consumer Discretionary
  - Technology
  - Industrials
  - Materials
  - Consumer Staples
  - Health Care
  - Energy
  - Telecom
  - Utilities
Industry Drivers

- Oil & gas prices
  - Supply
  - Demand

Brent Crude Oil - Historical Data
Global Oil Market

Cost of Production $:
- Onshore Middle East: $27
- Offshore Shelf: $41
- Onshore Russia: $50
- Onshore RoW: $51
- Deepwater: $52
- Arctic: $65
- Oilsands: $70

Current Price of Crude Oil:
- $47
- $56

Market Share %
Oil & Gas - Demand

World % Change in Oil & Energy Consumption

-3% -2% -1% 0% 1% 2% 3% 4% 5% 6%

Percent Change over Prior Year


Oil
Energy
Oil & Gas - Supply vs Demand

Global production and consumption of crude oil and other liquids (2011-17)

million barrels per day

production

consumption

forecast
Porter’s Five Forces

**Threat of New Entrants**
- High Capital Requirements
- Unequal Access to Distribution Channels
- Incumbent advantages

**Bargaining Power of Buyers**
- Price sensitive
- Low switching costs

**Bargaining Power of Suppliers**
- Several, but limited number of suppliers
- Possible threat of forward integration

**Threat of Substitutes**
- Alternative energy options

**Rivalry among existing competitors**
- Intense battle for market share
- Large exit costs
Financial Analysis
# Financial Analysis - Free Cash Flow

### Free Cash Flow Chart

![Free Cash Flow Chart](chart.png)

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Cash from Operations</td>
<td>68.22</td>
<td>81.54</td>
<td>83.50</td>
<td>87.14</td>
<td>85.82</td>
<td>52.43</td>
<td>52.80</td>
<td>45.78</td>
<td>58.49</td>
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<tr>
<td>Cash Flow from Investing</td>
<td>-49.29</td>
<td>-60.84</td>
<td>-73.61</td>
<td>-68.37</td>
<td>-72.84</td>
<td>-56.35</td>
<td>-57.69</td>
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<tr>
<td>Cash from Financing</td>
<td>-11.26</td>
<td>-20.31</td>
<td>-9.16</td>
<td>-18.06</td>
<td>-13.03</td>
<td>0.43</td>
<td>1.02</td>
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<tr>
<td>Capital Expenditures</td>
<td>-52.49</td>
<td>-67.42</td>
<td>-77.69</td>
<td>-77.59</td>
<td>-85.45</td>
<td>-59.28</td>
<td>-60.83</td>
<td>-42.02</td>
<td>-42.86</td>
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<tr>
<td>Free Cash Flow</td>
<td>15.26</td>
<td>14.56</td>
<td>6.05</td>
<td>9.87</td>
<td>0.22</td>
<td>-6.98</td>
<td>-7.71</td>
<td>3.75</td>
<td>15.63</td>
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<td>Free Cash Flow Yield</td>
<td>3.01</td>
<td>2.80</td>
<td>1.14</td>
<td>1.51</td>
<td>0.04</td>
<td>-1.56</td>
<td>-1.63</td>
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## Financial Analysis - Sales

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<tr>
<td>Sales</td>
<td>545.53</td>
<td>529.32</td>
<td>342.54</td>
<td>340.03</td>
<td>302.84</td>
<td>384.36</td>
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<td>EBITDA</td>
<td>98.56</td>
<td>89.77</td>
<td>8.3</td>
<td>6.86</td>
<td>58.16</td>
<td>75.66</td>
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<td>EBIT</td>
<td>61.14</td>
<td>49.68</td>
<td>-32.78</td>
<td>-34.7</td>
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<td>Earnings</td>
<td>42.79</td>
<td>41.49</td>
<td>17.03</td>
<td>16.94</td>
<td>6.7</td>
<td>17.69</td>
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Financial Analysis - Operating Margin vs S&P
# Financial Analysis - S5ENRS Ratios vs S&P

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<tbody>
<tr>
<td>S&amp;P 500</td>
<td>31.30</td>
<td>30.43</td>
<td>31.93</td>
<td>32.72</td>
<td>32.46</td>
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<td>32.74</td>
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<td>EBITDA Margin</td>
<td>21.06</td>
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<td>18.07</td>
<td>16.96</td>
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<td>S&amp;P 500</td>
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<td>17.54</td>
<td>16.56</td>
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<td>18.19</td>
<td>17.73</td>
<td>18.82</td>
<td>18.52</td>
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<td>Operating Margin</td>
<td>16.01</td>
<td>14.67</td>
<td>9.43</td>
<td>12.21</td>
<td>13.84</td>
<td>12.41</td>
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<td>Profit Margin</td>
<td>10.87</td>
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<td>4.22</td>
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<td>S&amp;P 500</td>
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<td>8.88</td>
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<td>9.25</td>
<td>8.08</td>
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<td>Return on Assets</td>
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<td>7.57</td>
<td>6.59</td>
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<td>-3.86</td>
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<tr>
<td>S&amp;P 500</td>
<td>2.17</td>
<td>0.75</td>
<td>1.93</td>
<td>2.82</td>
<td>3.16</td>
<td>2.86</td>
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<td>3.14</td>
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<td>2.57</td>
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<td>Return on Equity</td>
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<td>17.93</td>
<td>15.72</td>
<td>13.61</td>
<td>11.09</td>
<td>-7.71</td>
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<td>S&amp;P 500</td>
<td>5.05</td>
<td>2.08</td>
<td>5.23</td>
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<td>7.34</td>
<td>6.89</td>
<td>8.02</td>
<td>7.47</td>
<td>6.40</td>
<td>6.35</td>
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Statistical Analysis
Statistical Analysis - Energy vs S&P

Regression Analysis

Y = S&P 500 ENERGY INDEX
X = S&P 500 INDEX

Linear Beta
- Raw BETA: 1.172
- Adjusted BETA: 1.114
- ALPHA (Intercept): -0.010
- R^2 (Correlation^2): 0.704
- R (Correlation): 0.839
- Std Dev of Error: 1.000
- Std Error of ALPHA: 0.020
- Std Error of BETA: 0.015
- t-Test: 77.381
- Significance: 0.000
- Last T-Value: -0.225
- Last P-Value: 0.411
- Number of Points: 2514
- Last Spread: 1600.81
- Last Ratio: 0.224
Statistical Analysis - Energy vs Crude Futures

Regression Analysis:
Y = S&P 500 ENERGY INDEX
X = WTI CRUDE FUTURE May16

Linear Beta
- Raw BETA: 0.646
- Adjusted BETA: 0.764
- ALPHA ( Intercept): 0.194
- R^2 (Correlation^2): 0.385
- R (Correlation): 0.621
- Std Dev of Error: 2.315
- Std Error of ALPHA: 0.139
- Std Error of BETA: 0.049
- T-Test: 13.169
- Significance: 0.000
- Last T-Value: 0.004
- Last P-Value: 0.502
- Number of Points: 279
- Last Spread: -422.38
- Last Ratio: 11.704
Statistical Analysis - Energy vs WTI
Are oil price predictions reliable?
Are oil price predictions reliable?
Should we worry about the monetary policy?
Valuation Analysis
### Valuation - Multiples

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<thead>
<tr>
<th>S&amp;P 500</th>
<th>High</th>
<th>Low</th>
<th>Median</th>
<th>Current</th>
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</thead>
<tbody>
<tr>
<td>P/E</td>
<td>18.98</td>
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<td>16.62</td>
<td>18.43</td>
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<td>P/B</td>
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<td>1.83</td>
<td>2.48</td>
<td>2.76</td>
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<td>P/S</td>
<td>1.88</td>
<td>1.07</td>
<td>1.52</td>
<td>1.78</td>
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<tr>
<td>P/EBITDA</td>
<td>10.67</td>
<td>6.09</td>
<td>8.73</td>
<td>10.61</td>
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<tr>
<td>P/CF</td>
<td>11.72</td>
<td>6.71</td>
<td>9.23</td>
<td>10.75</td>
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<td>P/E</td>
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<td>1.52</td>
<td>1.94</td>
<td>1.65</td>
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<tr>
<td>P/S</td>
<td>1.57</td>
<td>0.63</td>
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<td>P/EBITDA</td>
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<td>3.06</td>
<td>5.89</td>
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<tr>
<td>P/CF</td>
<td>9.29</td>
<td>4.10</td>
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<th>Relative to S&amp;P 500</th>
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<tr>
<td>P/S</td>
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<td>P/EBITDA</td>
<td>6.48</td>
<td>0.50</td>
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<td>6.52</td>
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<tr>
<td>P/CF</td>
<td>0.79</td>
<td>0.61</td>
<td>0.79</td>
<td>0.81</td>
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Valuation - Technical Analysis
Recommendation
Recommendation

- Energy Sector
  - S&P 500 Weight = 6.81%
  - SIM Weight = 6.11%

- Maintain current weight
  - Uncertainty in the global oil market
    - Demand remains weak
    - Supply continues to flood the market
      - Oil prices could remain low for longer
    - Default rates continue to affect the industry
  - Earnings and CAPEX continue to fall

- “Falling Knife”