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**Overview:** this report is devoted to apply three valuation models: DCF model, relative valuation model, and control transaction valuation model, to value the firm C&J Energy Services (NYSE: CJES). This report starts with SWOT analysis, especially focusing on potential risks and opportunities, as well as their impact. Next, the report will simply introduce the energy sector and go through the competitor analysis. The above qualitative analysis will then help decide assumptions in the following quantitative valuation models. This report will go into details of each valuation method with data support in exhibits.



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4/15/2013

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*The report was written using personal efforts of the editor. No outside help was given and all opinions mentioned thereafter in the report are the sole personal opinions of the writer.*

**SWOT Analysis**

**Strengths**

* CJES has a relatively low debt level. Compared with a 40% industry average debt over total capital ratio, CJES only has 13.6%. It indicates that CJES has less liquidity risk and stronger financing ability.
* CJES has a growing presence in intensive services of completion activities in unconventional resource formation, which will have a positive long-term impact on the demand of services.
* CJES has outstanding workforce that plays an important role in improving technology and then reducing costs.
* CJES is expected to receive increasing domestic and international long-term capital investment on the development of completion activities. CJES will be able to purchase more properties and equipment to boost its production.

**Weaknesses**

* CJES’s revenue highly depends on a few long-term contracts. Providing price discount will worsen future revenues.
* Ineffective internal control subjects CJES to operational risks, which may result in losses, penalties, or sanctions.

**Opportunities**

* CJES decides to migrate drilling activities from low-price gassier regions to relatively high-price oily regions. This migration will positively affect the demand for services.

**Threats**

* A biggest threat comes from the declining and highly volatile natural gas (NG) prices. Together with more strict regulations on NG drilling, this will have negative impact on NG production and on the demand for NG services.
* More restrictions on hydraulic fracturing will result in higher costs.
* A highly competitive oilfield service market with excess capacity will lead to a decrease in service rates. This will further hurt CJES’s revenue.
* Strict covenants in debt agreements limit CJES’s debt financing ability.

**Industry Outlook and Major Competitors**

**Industry Outlook**

The energy sector has diverse products and services, the prices of which are exposed to many risk factors and are highly volatile. They are sensitive to policies, weather conditions, and operational accidents. The current oil and natural gas service industry has three main features: declining demand, more stringent regulations, and intense competition. Specifically,

* Facing a declining trend in gas prices, many firms engaged in natural gas E&P may reduce their demand for relevant services. More restrictions on natural gas drilling and the outbreak of alternative energy sources will further weaken the demand for natural gas services.
* When more strict regulations on hydraulic fracturing operations are put into practice, it will be more difficult to complete oil/natural gas wells in shale formations and increase costs of hydraulic fracturing services.
* The industry is highly competitive. Four primary competitive factors are technical expertise, fleet capability, experience, and financial resources. Participating firms may easily lose their market shares and potential profits if their competitors respond more quickly to emerging technologies, have a stronger presence in particular markets, or have greater capital investment. In addition, intense competition and excess supply will probably result in lower service prices.

Table 1: Major Competitors



Eight representative competitors are selected based on the following screening criteria: similar businesses, similar revenue level, and U.S.-based firms. Comparing with the industry average, CJES has greater liquidity, less leverage, stronger solvency ability and profitability, and higher revenue growth during the prior year. (Note: outliers highlighted in yellow are ignored.)

**DCF Valuation Model**

The DCF Model (Exhibit 1) is based on three-year historical financial data (from 2010 to 2012) and material assumptions as following:

* 12/31/2012 is set as the valuation date, and free cash flows (FCFs) are projected on a five-year time horizon (from 2013 to 2017). The effective tax rate is set as 35%.
* The terminal value (TV) is estimated by the average multiple TEV/EBITDA.
* The discounted rate is anticipated by WACC (Exhibit 2, 3), which combines the costs of debt and equity, and they are weighed by their contribution to the total capital that is consisted of the book value of total debt and the market value of total equity.
* CAPM is used to calculate the cost of equity, and the risk free rate is the 20-year Treasury bond rate. The market risk premium is assumed as 5%, and the equity beta is estimated by balancing the comparable re-levered beta, beta source in Capital IQ, and beta source in Bloomberg.
* The cost of debt is estimated to be 7%, the average interest rate of BB rated corporate bonds sourced from FINRA.
* According to CJES’s 2012 annual report, the demand for services of natural gas exploration and production (E&P) will keep shrinking because of increasing service prices and dropping natural gas prices. The price discount to continue long-term contracts is another factor that will adversely affect future sales. However, CJES will migrate its drilling activities from gassier regions to oily regions, and synergy effects from acquisitions will help promote revenues. Thus, I assume the sales growth rates from 2013 to 2017 are 13%, 7%, 5%, 10%, and 15%, respectively.
* Even though synergy effects will reduce SG&A, COGS will increase because more restrictions on hydraulic fracturing will be probably put into exercise soon. Since COGS occupies about 80% of the total operating expenses, its change has greater impact on the operating income. Additionally, amortizing goodwill will negatively affect the EBIT margin. Therefore, I assume EBIT margins will gradually decrease to 20%, 18%, 16%, 15%, and 15%, respectively in 2013-2017.
* Balancing the increasing capital investment in completion activities with the decreasing demand for natural gas E&P services, I assume the CAPEX will grow 30% and 20% in 2013 and 2014, respectively. For the reason that CJES plans to transfer its drilling activities from gas to oil, it’s likely that CJES will then incrementally purchase oil-drilling properties and equipment. Thus, CAPEX is estimated to grow 20%, 20%, and 30% from 2015 to 2017, respectively.
* Increase in NWC is estimated to be $100, $150, $100, $50 and 50 (in millions), respectively in 2013-2017, because the renewal of long-term contracts and customer delay will result in a great deal of account receivable.
* Goodwill is anticipated to be about $632 million by simply subtracting the 2012 NWC and $500 million PPE from the 2012 TEV. Total D&As are then estimated by using the MACRS method (Exhibit 4).
* Existing PPE is depreciated by assuming ¼ 5 year MACRS, ½ 7 year MACRS, and ¼ 10 year MACRS. New CAPEX (CAPEX estimation in DCF model) is only depreciated by 7 year MACRS. Total D&A estimations (Exhibit 4) are linked back to the DCF model.

Table 2: Sensitivity Table



According to sensitivity analysis (Table 2), the equity value and price of CJES on 12/31/2012 will increase up to $1,368.32 million, $25.29 in the best situation, drop to $1,232.01 million, $22.77 in the normal situation, or jump down to $1,109.88 million, $20.52 in the worst case.

**Relative Valuation Model**

In this section of the paper, CJES’s equity value is estimated by the relative valuation model. This is looking at CJES’s two important ratios: enterprise-based TEV/EBITDA ratio and equity-based P/E ratio (Table 3).

**Selection of Comparable Firms**

Four most comparable firms: Basic Energy Services (BAS), Newpark Resource (NR), Pioneer Energy Services (PES), and Key Energy Services (KEG), are selected based on the following criteria:

* They provide similar products and services: hydraulic fracturing, coil tubing, well site, and other oil/natural gas E&P-related products and services.
* Their LTM revenues are in a range between $900 million to $2,000 million.
* They are all NYSE listed and set their primary business in the United States.

Table 3: TEB/EBITDA and P/E Ratio



Extracting 2011-2012 data from Bloomberg as shown in the above table, I decided to use the 2012 cross-sectional averaged ratios because the most recent historical data are more representative. Then the estimated TEV is obtained as $1,504 million and $2,061 million, respectively, by multiplying the ratios with projected EBITDA and projected earnings at the end of 2012. Consequently, the total equity value and implied stock price on 12/31/2012 are $1,344.97 million, $20.19 and $1,902.03 million, $24.96 under TEV/EBITDA and P/E ratio method, respectively.

**Control Transaction Valuation**

In this section, CJES’s equity value is estimated by the control transaction method. Six typical transactions are selected from CJES’s competitors’ acquisition records, in which the target firms have similar business with CJES. As shown in Table 4, the most recent multiple data are extracted from Bloomberg. To avoid extreme values, medians are used to calculate the TEVs. Among six TEVs, the maximum and minimum values are deleted, and then the final selected TEV is the average of the left four values; that is $1887.78 million.

Table 4: Control Transactions



**Valuation Conclusion**

Table 5: Valuation Summary



Combining the valuation results from the three methodologies, as shown in the above table, the consequential equally-weighted estimated equity value on 12/31/2012 is $1,581.10 million.

**Exhibit 1: DCF Model**



**Exhibit 2: WACC - 5 Year Beta (Capital IQ)**



**Exhibit 3: WACC - Comparable Beta**



**Exhibit 4: MACRS, Estimated Depreciation and Amortization**

