

Equity Valuation of Southwestern Energy Company

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Keywords: DCF; Relative Valuation; Company Analysis; Industry Analysis; Risk Analysis

Abstract: According to the financial statements and other relative documents of Southwestern Energy Company (SWN), the company will be benefited from reserves increase, capital structure improvement, technological advances and vertical integration. The greatest challenge that SWN faces is to stable its return on invested capital (ROIC) and increase market share. Despite some fluctuations of ROIC in the past few year, SWN has bright future to generate more profit and gain more market shares because of its brilliant management of costs and the robust value growth in its core operation areas. The discounted cash flow (PV-10) method and two different relative valuation methods were used to calculate the target one-year price with a list of assumptions that in line with SWN's operational strategies was made.

1. Introduction

SWN is a leading gas and oil exploration and production company in the United States. The company has two segments: Exploration and Production, and Midstream Services. The exploration and production activities are primarily in the Appalachian Basin, Fayetteville Shale in Arkansas and New Brunswick, Canada. Midstream services include natural gas gathering and distribution activities in Arkansas and Louisiana.

2. Company Analysis

SWN focuses on both E&P and Midstream business, which gives company competitive advantage of vertical integration that makes the company operates more efficiently and effectively, and improve the flexibility. Besides that, SWN also has good liquidity ratio. Although it has relative weak leverage, the company changes its capital structure to improve the financial flexibility. Moreover, the technology that SWN uses help the company operate efficiently and effectively.

SWN's total proved reserves increased dramatically in 2017, up 181 percent, compared to 2016. Furthermore, pre-tax PV-10 reserve value increased 175 percent compared to 2016. Because reserve is one of the most important drivers in the industry, the increase in both total proved reserves and reserve value will add value to SWN and, therefore, increase the stock price. Net debt to EBITDA ratio was 2.8 times at year-end 2017, improved 38 percent compared to 4.5 times at year-end 2016. SWN also did well in maturity schedule improvement, with only \$92 million in bonds due prior to 2022. Furthermore, SWN will benefit from amended and extended bank facilities by adding duration and maintain operational flexibility. All these capital structure improvements mentioned above can increase SWN's financial flexibility, strengthen liquidity position, and release future cash flow for new investments and acquisitions.

By focusing on technical excellence and margin expansion, SWN can improve well productivity, increase type curves, and reduce drilling costs, which will in turn increase returns and expand inventory. Proved Developed Finding and Development costs were 4 percent better than 2016. SWN's commenced water infrastructure, which offers opportunity to exploit third-party business, can increase the operational capability, improves logistics, and reduce the costs of truck traffic. SWN also renegotiated the transportation and processing agreements to reduce costs to enhance margins. The margin expansion can provide strong support to SWN's growth.

SWN's major properties are located in three major regions: Southwest Appalachia, Northeast Appalachia and Fayetteville Shale:

Southwest Appalachia has rich oil and NGL resources. For the year ended December 31, 2017, natural gas production was 85 Bcfe, oil production was 2,228 Mbbls, and NGL production was 14,193 Mbbls. The total production in the region was 183 Bcfe, which comprises 20 percent of SWN's total production. Reserves in the region were 7.0 trillion cubic feet equivalents (Tcfe), which comprises 47 percent of SWN's total production. As for leasehold acreage, developed leasehold acreages were 100,244 (gross) and 70,582 (net), undeveloped leasehold acreages were 443,328 (gross) and 219,709 (net). Producing wells were 387 (gross) and 272 (net).

Northeast Appalachia has rich natural gas resources. For the year ended December 31, 2017, natural gas production was 395 Bcfe, which comprises 44 percent of SWN's total production. Reserves in this region were 4.1 Tcfe, which comprises 28 percent of SWN's total reserves. As for leasehold acreage, developed leasehold acreages were 108,422 (gross) and 103,299 (net), undeveloped leasehold acreages were 113,298 (gross) and 87,927 (net). Producing wells were 600 (gross) and 531 (net).

Fayetteville Shale also has rich natural gas resources. For the year ended December 31, 2017, natural gas production was 316 Bcfe, which comprises 35 percent of SWN's total production. Reserves in this region were 3.7 Tcfe, which comprises 25 percent of SWN's total reserves. As for leasehold acreage, developed leasehold acreages were 849,280 (gross) and 492,984 (net), undeveloped leasehold acreages were 504,484 (gross) and 424,858 (net). Producing wells were 4,698 (gross) and 3,243 (net).

SWN has eight major suppliers, representing 3.28 percent of cost of good sold incurred by SWN. The major customer for SWN is the Royal Dutch Shell PLC Company, contributing 6.82 percent of SWN's total revenue of 2017.

Table 1: Major suppliers

Company name	Rev	COGS
Nuverra Environmental Solutions Inc	9.00%	1.01%
USA Compression Partners LP	4.23%	0.73%
US Silica Holdings Inc	0.77%	0.70%
The Weir Group PLC	0.20%	0.56%
TriMas Corp	0.39%	0.20%
KLX Inc	0.06%	0.07%
TETRA Technologies Inc	0.01%	0.01%

Source: Bloomberg

Table 2: Major customer

Company name	Rev	COGS
Royal Dutch Shell PLC	6.82%	0.09%

Source: Bloomberg

3. Industry Analysis

Companies in the oil and gas industry operate in several aspects, such as the exploration and production of crude petroleum, the mining and extraction of oil, the exploration and production of natural gas, sulfur recovery from natural gas, and recovery of hydrocarbon liquids. Oil and natural gas prices are one of the most important drivers in the energy industry because prices are directly related to the revenue. Furthermore, since the energy industry is a cyclical industry, assets and reserves are also two important drivers in the industry.

(1) Threat of Entry: In general, the threat of entry into the oil and gas industry is low. The natural resources and the large amount of capital are the key barriers for new entrants. Thus, there are fewer opportunities for new entrants to develop themselves (IBIS World, n.d.). In addition, patented technology can also be a barrier for new entrants. However, large international oil companies usually have patented technology that can help them reduce the costs. For new entrants, because they do not have these technologies, their costs will remain at a high level, which will make them

hard to survive (Hokroh, 2014, p.77).

(2) Availability of Substitutes: In short term, the threat of substitutes is low since oil and gas still play major roles in the transporting and heating. However, with the development of the technology, there are many alternative resources that can take the place of the oil and gas. Therefore, the threat of substitutes is high in the oil and gas industry in the long run, since people will have more choices in the future. (Hokroh, 2014, p.78).

(3) Competitive Rivalry: The competition in the oil and gas industry is serious. Industry rivalry can be determined by amount of competitors, growth rate, and amount of fixed costs and switching cost. The oil and gas industry is a mature industry with growth rate is low in the industry. Therefore, the only way for companies to grow is capturing other's market shares, which results in increased competition. Moreover, fixed cost and switching cost are high in the oil and gas industry, so the companies cannot change their business easily, which will also intensify the rivalry.

(4) Bargaining Power of Supplier: In the oil and gas industry, the bargaining power of suppliers is low. Companies within the oil and gas industry need to purchase services from three major industries, which are the metal pipe & tube manufacturing, oil & gas field services, and pump & compressor manufacturing industry, to support their operations. Furthermore, oil and natural gas companies also need to purchase chemical products for well completion and workover operations. Currently, lots of companies, not only in the US market but also global market, can provide services for oil and natural gas exploration and development. Therefore, oil and natural gas companies have many choices when they choose their suppliers.

(5) Bargaining Power of Buyers: For natural resources such as oil and natural gas, the bargaining power of buyers in the oil and gas industry is relatively low. To a large extent, buyers are "price takers" rather than "price makers".

4. Risk Analysis

SWN's risks can be separated into three categories, which are operational risk, regulatory risk, and financial risk. The risks that SWN faces could threat its staffs, customers and investors.

Operational risks include unionization and weather condition, as long as seasonal trends. SWN's unionization is not perfect enough, though the company has an independent unionization, it did not pay attention to complete basic services for employees. Besides that, since the oil drilling and exploration are operating under "open-air" condition. Therefore, the change in weather condition will lead to the change in drilling and exploration costs, and will ultimately lead to the change in production. In addition, the demand for oil and gas is influenced by seasons. Thus, to meet the fluctuated demand, the production also needs to change in order to get certain profit margin.

Regulatory risks include operation and construction regulation, price regulation, and environment regulation. The drilling locations, the number of wells, and the minimum size for spacing units are heavily regulated by state governments. Companies need to obtain permits before drilling. The operation of interstate pipelines is regulated by FERC. However, regulations can change overtime. Furthermore, Dodd-Frank Act, and the U.S. Commodity Futures Trading Commission along with other regulators have imposed more regulations on financial tools, such as swaps, futures, and options. Environmental regulations are even stricter. These regulations regulate the whole processes from the very beginning of drilling operations to the last step of abandoning of wells and cleanup of pollutants.

Financial risk includes leverage ratio and risk related to the interest rate, etc.

Table 3: Financial Strength Metrics

Company	Curretn Ratio	Qucik Ratio	Debt/Equity Ratio
SWN	1.9	1.7	221.90%
CHK	0.6	0.6	NA
SM	1.0	0.8	121.50%
QEP	0.3	0.3	56.90%
RRC	0.6	0.5	71.20%
Average	0.88	0.78	117.88%

Source: Capital IQ

When looking at leverage ratio, SWN has more debt in the capital structure than other companies have; SWN basically uses more debt than equity to finance the assets. SWN also faces financial risk related to the interest rate. In 2017, SWN reported approximately \$4.4 billion in total debt. Obviously, changes to the interest rate will have a big influence on SWN's financials.

5. Financial Performance and Projections

Financial performance and projections includes important assumptions that used to build the model. The assumptions are used to state the important items, which are key drivers of the model. These key drivers including oil, natural gas and NGL pricing differentials, natural decline per quarter, decline rate on new wells, and the number of new wells coming online.

According to 2018 guidance, Oil pricing differential % of WTI equals to 83%. NGL pricing differential % of WTI NYMEX equals to 28%. Natural gas pricing differential % of Henry Hub equals to 73%. Natural decline per quarter are 4%, 4%, and 3% for natural gas, oil, and NGL, respectively. The decline rate on new wells is 33.33%. The number of new wells coming online in 2018 is 56 in Northeast Appalachia, 68 in Northwest Appalachia, and 5 in Fayetteville Shale.

The discounted cash flow method is based on PV-10 (10 percent discount rate) to discount the projected net cash flows from year 2018 to year 2041. A 120 acre spacing and 80 percent works were assumed in calculating future undeveloped reserve value. The appraised 12-month price under the discounted cash flow method is \$5.40.

Appraised Value					\$ MMs
SWN Reserves	0.0	Mmboe		=	518.3
Pemian Acreage Position		Acres	x	=	0.0
Other E&P Value, Muststream				=	0.0
Pemian Undeveloped Reserve Potential (732,494 acres, 120 acre spacing, 80% works, 0.8 Mmboe net EUR)	3,857.8	Mmboe	x	\$0.15	= 578.7
Total Value					1,097.0
Other Assets	564.0	x		0% disc. =	564.0
Net Working Capital	1,500.0	-		780.0 =	720.0
Long Term Debt	(4,391.0)	x		100% =	0.0
Preferred Stock	0.0				0.0
Other Liabilities	313.0	x		0% disc. =	313.0
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Appraised Value					\$2,703
Appraised Value Per Share					\$5.40

The relative multiples that used to value SWN were price to cash flow per share and enterprise value to earnings before interest, taxes, depreciation and amortization. The comparable companies are SM Energy Co., Chesapeake Energy Corp., QEP Resources Inc., and Range Resources Corp. The appraised one-year prices using P/CFPS multiple and EV/EBITDA multiple are \$4.93 and \$7.35, respectively.

The 12-month target price/range is \$5.40-\$5.89.

Table 4: Peer companies' financial statistics

Company	SM	CHK	QEP	RRC	SWN
Mkt Cap (in Millions)	2,497.30	2,717.40	2,985.60	3412	2505.8
P/CF	4.84	3.63	5.04	4.11	1.94
EV/EBITDA	8.73	6.70	7.20	6.94	6.39

Source: Bloomberg

Table 5: Current price and appraised one-year price

Valuation Method	Valuation	Weighting	Weighted Valuation
DCF	\$5.40	1/3	\$1.80
P/CFPS	\$4.93	1/3	\$1.64
EV/EBITDA	\$7.35	1/3	\$2.45
One-year target price		100%	\$5.89

References

- [1] IBISWorld. (n.d.) Retrieved February 19, 2018.
- [2] Hokroh, M. A. (2014). An Analysis of The Oil and Gas Industry's Competitiveness using Porter's Five Forces Framework. *Global Journal of Commerce & Management Perspective*, 3(2), 76-82.