MERCER CAPITAL

BUSINESS VALUATION & FINANCIAL ADVISORY SERVICES

How to Value Your Exploration & Production Company

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MERCER CAPITAL
BUSINESS VALUATION & FINANCIAL ADVISORY SERVICES

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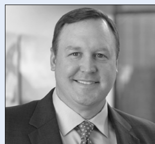

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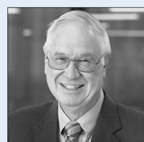

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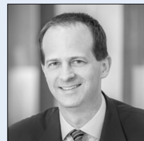

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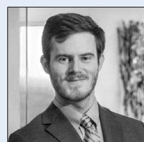

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How to Value Your Exploration and Production Company

It is inevitable; all successful businesses eventually undergo some form of ownership transition. People do not live forever, so businesses must be passed on in one way or another. There are numerous scenarios under which such transitions occur; however, all scenarios must invariably address the question of value.

The purpose of this article is to provide an informative overview regarding the valuation of exploration and production (E&P) companies operating in the oil and gas industry.

A lack of knowledge regarding the value of your business could be very costly. Opportunities for successful liquidity may be missed or estate planning could be incorrectly implemented based on misunderstandings about value. In addition, understanding how exploration and production companies are valued may help you understand how to grow the value of your business and maximize your return when it comes time to sell.

When Do You Need to Know What Your Business Is Worth?

An owner who is contemplating any kind of transaction or agreement based on value needs to know what their business is worth. Some examples of when you may need to know what your company is worth are outlined below.

Selling Out?

In the most obvious case, someone who is planning to sell their business needs to know what it is worth. Probably the hardest issue a business owner encounters is cashing-out their life's work. Beyond the myriad of emotional issues you will face are the raw economics of how you will sell your company and for how much. There are hundreds of issues that may arise in a transaction, many of which ultimately affect the seller's proceeds of the transaction. Knowing what you should be able to expect will help you to evaluate whether or not an offer for your company is reasonable.

Selling In?

If you are planning on transferring ownership to your children or your management team, you will need to know what the interests being transferred are worth. Given taxes and other economic variables, this may be much less than a pro rata interest in the total value of the business. Ignoring this issue can cost you a lot of money.

Buy-Sell Agreements: A Handshake or Arm-Wrestle?

Many business owners fail to understand the valuation implications of buy-sell agreements. If you have other shareholders in your business who are non-family, and maybe some who are, you probably have some kind of buy-sell agreement between the shareholders that describes how the business (or business interests) will be valued in the event of a shareholder dispute, death, or departure from the business (even on friendly terms).

However, in our experience, buy-sell agreements almost never sufficiently describe the mechanism to be used to value the business. The process looks simple when the buy-sell agreement is being drafted and a transaction is not on the table, but when the day comes that a buy-sell agreement is invoked, you will want the process to have been outlined very clearly.

All the Other Reasons Listed in the Ownership Transfer Matrix

Mercer Capital developed the Ownership Transfer Matrix to illustrate the universe of ownership transition scenarios. Most business owners are consumed with day-to-day activities of running their business. Many fail to acknowledge that life (and business) cycle events do happen to them, their partners and their families and that these events will require that their businesses be valued.

Alternatively, some business owners use business valuation as an essential tool for creating ownership stability and assessing management performance. Mercer Capital professionals have spoken for years about the "things that happen to you" and the "things you make happen."

Our essential point is this: an understanding of the value of your business or business interest is critical in preparing yourself for any of these eventualities.

The Ownership Transfer Matrix	PARTIAL SALE/TRANSFER	TOTAL SALE/TRANSFER
THINGS YOU MAKE HAPPEN	ESOP Outside Investor(s) Sale to Insiders/Family Combination Merger/Cash Out Going Public	Sale of Business Stock-for-Stock Exchange w/ Public Co. Stock Cash Sale to Public Co. Installment Sale to Insiders/Family ESOP/Management Buyout
THINGS THAT HAPPEN TO YOU	Death Divorce Forced Restructuring Shareholder Disputes	Death Divorce Forced Restructuring Bankruptcy

Value Management

Maybe you are not currently contemplating a transaction in your business. You do not plan to sell in the next few years, you are not planning on transferring it to your children, you are not entering into any buy-sell agreements or shareholder agreements based on the value of the business, nor do you anticipate any of the other events listed in the Ownership Transfer Matrix. Then why do you care? Because knowing the value of your business can be a tremendously effective management tool.

Ultimately, you will get two returns from your business – what we in the valuation community call "interim cash flows" and "terminal cash flows." Interim cash flows might be your salary, your benefits, and your dividends. You know what these are and what you can do to influence them. Your biggest cash flow, however, may be the terminal cash flow – what you receive when you go to sell your business. Do you have an idea of what this should be and how you can influence it?

The Basic Concepts That Must Be Defined in Every Valuation

Before covering specific details related to the oil and gas industry, it is important to understand a few basic concepts related to all valuation analyses.

It comes as a surprise to many business owners to learn that there is not a single value for their business. Numerous factors (legal, tax or otherwise) play important roles in defining value based upon the circumstances of the transfer of equity ownership. While there are significant nuances to each of the following topics, our purpose is to help you combine the economics of valuation with the legal framework of a transfer (either voluntary or involuntary).

The Valuation Date

Every valuation has an "as of" date which simply refers to the date around which the analysis is focused. The date may be set by legal requirements related to a death or divorce, or be implicit, such as the closing date of a transaction.

The Purpose of the Valuation

The purpose of the valuation is important because it is linked to the transfer event (such as a sale, estate planning, fair value accounting, bankruptcy, etc.). A valuation prepared for one purpose is not necessarily useful for another.

The Standard of Value

The standard of value is an important legal concept that must be addressed in every valuation assignment. "Fair market value," most commonly used in tax matters, is the most familiar standard of value. Other important standards of value are "investment value" (purchase and sale transactions), "statutory fair value" (corporate reorganizations), and "intrinsic value" (public securities analysis). Using the proper standard of value is crucial in obtaining an accurate determination of value. The standard of value will influence the selection of valuation methods as well as the level of value.

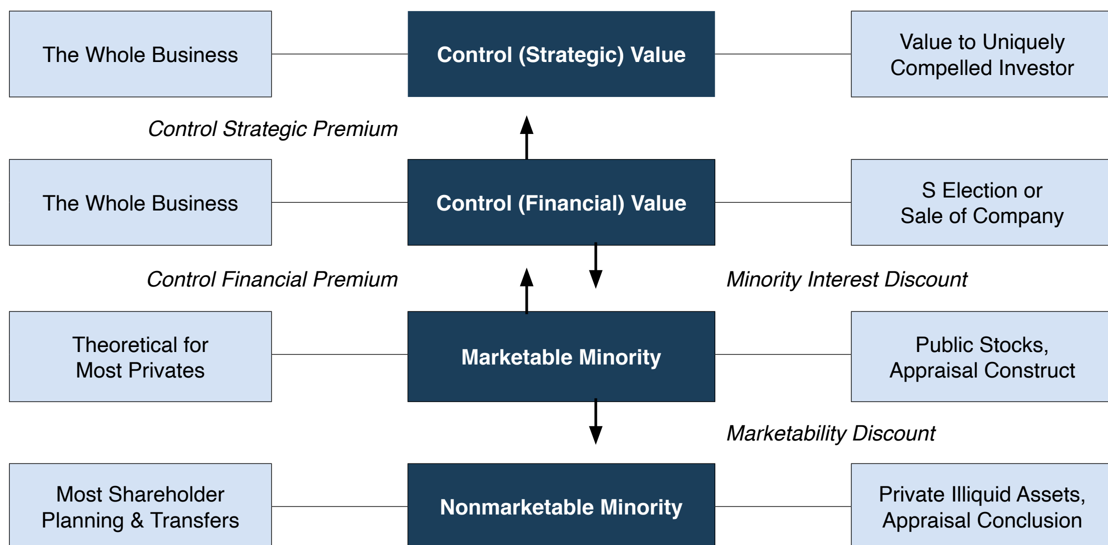
The Levels (Premise) of Value

Does it make a difference in value per share if you own 10% or 75% of a business? You bet it does. The former is a minority interest and does not enjoy the prerogatives of control that the latter does. How does this affect value per share? The minority owners are relegated to bearing witness to a process over which they have no control or discretion. In effect, they often play the role of silent partners. They cannot control compensation or distributions, and they certainly cannot dictate the strategic direction or operational management of the business. Thus, the fair market value per share of a minority owner is likely worth less per share than the shares of a 75% owner.

To add further insult to injury, a minority owner of a private business likely has no ready market in which to sell their interest. Minority ownership in a publicly traded company enjoys near instantaneous liquidity given that such interests can be traded on organized and regulated exchanges. The unique uncertainties related to the timing and favorability of converting a private, minority ownership interest to cash gives rise to a valuation discount (marketability) which further distances the minority owner's per share value from that of a controlling owner's value per share.

The following chart provides perspective of the various levels of value. In most cases a valuation is developed at one level of value and then converted to another level of value by way of a discount or premium. Knowing when to apply such adjustments and quantifying the size of these adjustments is no simple matter.

What does all this have to do with your business? A lack of basic knowledge of these concepts can leave you short of the required vocabulary and understanding needed to comprehend the context with which the value of a business interest is developed.



Treasury Regulations Section 1.611

It is also important to consider the regulatory framework surrounding oil and gas valuations. Treasury Regulation Section 1.611-1(d)(2) provides guidance in determining the fair market value of oil and gas properties. It provides that "the fair market value of an [oil and gas] property is the amount which would induce a willing seller to sell and a willing buyer to purchase." Additionally, Section 1.611-2(g) outlines some considerations that a valuation of mineral properties must include for tax oriented appraisals. A summary of these considerations and additional items that we believe are pertinent to most oil and gas valuations is shown in the chart below.

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Summary of Treasury Regs 1.611-2(g)

Considerations for an Oil and Gas Valuation	Description
Maps and descriptions of property	Number of acres by reserve type
History of the property	Lease terms
	Date of initial acquisition and cost basis
	Cost of mineral improvements
Valuation date	
Accounting information	Allocation of value and/ or cost to the mineral property and property improvements
	Method used to determine property improvements
	Depletion/depreciation expense details
Reserve estimates	Break down of reserves by mineral type (oil, gas, NGL)
	Break down of reserves by classification (PDP, PDNP, PUDs)
	Other pertinent geological information
Reserve characteristics	Number of producing zones and average depth of each
Operating conditions	Changes in proration, flooding, vacuum, etc.
Details regarding previous transactions	Including dates of transactions and the terms of the leases
Interest characteristics	Type of interest (royalty, overriding royalty, working interest)
	Percent/fraction of interest owned
Well descriptions	Number of wells, date of completions, and/ or abandonment
	Annual production per well per day
Other Necessary Items	**Description**
Sales history	Revenue generated from reserves over the last five years
Historical oil and gas prices	Important in understanding benchmark price differentials
Future NYMEX pricing	Important in estimating future cash flow

Important Industry Factors

A review of the oil and gas industry is important in establishing a credible value for any business operating in this space. Such a review should consider a wide range of issues (far too many to list in full here), with primary considerations as outlined below.

- **Price Volatility.** The oil and gas industry is characterized by high price volatility. Oil and gas prices are determined by the market and are bound by the basic laws of supply and demand. The size and global nature of this market mean that these prices are influenced by countless economic – and sometimes political – factors affecting individual producers, consumers, and other entities that comprise the global market. The price of oil and gas is influenced by endless variables in the industry making it very volatile.

- **Technology**. Technology in the oil and gas industry changes rapidly and has the potential to materially impact the market. Adoption of innovative drilling techniques, such as horizontal drilling and hydraulic fracturing, has made oil and gas production quicker, easier, and relatively cheaper. By decreasing production costs, technology has allowed producers to increase their margins in times of high-pricing and to keep drilling sites open in low-price environments. Developments in technology have also allowed producers to reach oil and gas that was previously regarded as unattainable, particularly in various unconventional shale plays.

- **Regulation**. The oil and gas industry is heavily regulated by various entities, including the Environmental Protection Agency (EPA), the Federal Energy Regulatory Commission (FERC), the Bureau of Land Management (BLM), and the Department of the Interior (DOI). Regulations on operations have a substantial impact on the oil and gas industry. Legislation aimed at decreasing producer pollution can be financially burdensome to comply with while regulations on drilling techniques can make the production process more costly. It is important to note that the regulatory environment is constantly changing and that it varies across regions and countries.

- **Variation by Oil and Gas Play**. Drilling economics vary by region. There are geological differences between oilfields and reserves that make it harder to drill in some places than others. Whereas some wells can be drilled using traditional, conventional techniques like vertical drilling, less permeable shale wells must be drilled using unconventional methods, like horizontal drilling or hydraulic fracturing. These unconventional methods tend to bear higher operating costs. Location also tends to influence drilling and transportation costs, ultimately making break-even prices and profits vary across and within regions. Accordingly, the value of any E&P Company is influenced by the location of its operations and it is important to consider geological differences when valuing E&P companies.

Financial Considerations

When valuing a business, it is critical to understand the subject company's financial condition. E&P companies rely on their oil and gas reserves to produce revenue. Understanding the drilling economics is crucial in understanding a company's value. As previously mentioned, drilling economics variy by oil and gas play. Thus the location of a company's operations can have a substantial impact on value. Well economics refer to the production rates, the decline curve, and costs of a well. Well production rates change over time as wells age and as technology changes. Each well has a unique decline curve, which illustrates the rate at which production is decreasing. A variety of factors can affect the shape of a well's decline curve such as drilling techniques and well spacing.

A break-even analysis is a helpful tool used to analyze drilling economics. A break-even analysis can be used to compare how much it costs to produce one barrel of oil versus the revenue generated per barrel. This can reveal whether a company is losing money through the production process and determine at what price your company can be profitable.

To properly consider a company's current financial position it is important to understand management's plan for future development of wells. Since oil is a depleting asset, in order to continue at current levels of production, oil companies must continuously explore for reserves and develop new wells. Thus, when valuing an E&P company in today's market, it is important to consider the company's ability to meet its capital needs.

Working Capital

Analyzing an E&P company's working capital (current assets minus current liabilities) gives insight into its current liquidity. If your company has high working capital as a percentage of sales, this suggests that you should be capable of continuing daily operations. If the inverse is true and your company's working capital is significantly lower than industry norms, you could be at risk of suspending operations. However, it could also be the case that your company has excess working capital and is forgoing a higher return in exchange for the feeling of security that is accompanied by holding extraneous cash.

Leverage

Leverage refers to the amount of debt used to finance operations. Because oil and gas companies often have high capital expenditures, they often have to finance capital projects with debt. Leverage magnifies both returns and losses, consequently increasing a company's financial risk. During low commodity price cycles, highly leveraged companies can be hit particularly hard. Some may have to take out debt to pay interest on already outstanding debt while others may be forced into bankruptcy to either restructure or completely shut down. A debt to worth ratio is a good indicator of leverage, calculated by dividing total liabilities by tangible net worth.

Interest coverage ratios are another useful metric that indicate a company's liquidity and leverage. The interest coverage ratio (EBIT/ interest expense) indicates a company's ability to pay its debt and continue operations. If your company has a low interest coverage ratio, you may be at risk of falling short on interest payments.

EBITDA/ EBITDAX

E&P companies have high operating costs, in large part due to the magnitude of exploration expenses. Exploration endeavors, although not always successful, are extremely costly. For this reason, some in the oil and gas industry prefer to look at EBITDAX multiples rather than EBITDA multiples for companies that engage in significant exploration endeavors. EBITDAX represents EBITDA before exploration expenses, and tends to be a better metric to compare E&P companies because it negates the effect of a company's selected accounting policy.

It is helpful to understand your financials in relation to other E&P companies that focus in the same plays. If your financials deviate strongly from your peers, it is important to consider the effect this may have on the value of your business.

What Does the Valuation Process Entail?

Without offering a full dissertation on business valuation, you need to understand that there are three commonly accepted approaches to value: asset-based, market, and income. Approaches refer to the basis upon which value is measured. Each approach incorporates procedures that may enhance awareness about specific business attributes that may be relevant to determining the final value.

In the realm of business valuation, each approach incorporates procedures that may enhance awareness about specific economic attributes that may be relevant to determining the final value. Ultimately, the concluded valuation will reflect consideration of one or more of these approaches (and perhaps several underlying methods) as being most indicative of value for the subject interest under consideration.

Mineral reserves are an E&P company's main generator of value, but because they are depleting assets and are often owned through working interests, their value can be tricky to understand. Reserves are typically divided into two groups: proved and unproved reserves. Proved reserves are further classified as proved developed producing reserves (PDP), proved developed non-producing reserves (PDNP), and proved undeveloped reserves (PUDs); unproved reserves are further classified as probable and possible. The valuation methodology used depends on the type of reserve. Generally the income approach is the most supportable approach for valuing proved reserves and the market approach is generally used to value PUDs and unproved reserves.

The Asset-Based Approach

The asset-based approach can be applied in different ways, but the general idea is that the enterprise value of a business is given by subtracting the market value of liabilities from the market value of assets. The Net Asset Value ("NAV") method compiles the value of varying assets on a company's balance sheet and then subtracts liabilities. While this method can be helpful in aggregating the value of an E&P company's assets, the value of these assets is not always readily available and sometimes must be established through other methods, such as the market approach and the income approach. It is also helpful in asset holding companies or where the assets are more passive in nature as opposed to being operated by the same company.

The Income Approach

The income approach can be applied in several different ways. Generally, such an approach is applied through the development of an ongoing earnings or cash flow figure and the application of a multiple to those earnings based on market returns. For companies operating in the oil and gas industry, however a discounted cash flow analysis is most common because reserves produce unequal annual cash flows that can be projected. This approach allows for the consideration of characteristics specific to the subject company and its reserves, such as location and well economics.

The income approach can be used to value proved reserves because future cash flows can be projected based on the information provided by management, developed in a discrete projection, or in a reserve report.

A reserve report is typically compiled by petroleum engineers who make an estimate of reserves available during a certain production period under certain conditions. Unproved (probable and possible) reserve categories may also be estimated but are typically reported separately.

These future production estimates from reserve reports can be used to assist in projecting revenue throughout the remaining life of a well or portfolio of wells. Estimates of future cash flow can be discounted back to the present using an appropriate market derived discount rate.

The Market Approach

The market approach utilizes pricing multiples from guideline transaction data or valuation multiples from a group of publicly traded companies to develop an indication of a subject company's value. In many ways, this approach goes straight to the heart of value: a company is worth what someone is willing to pay for it.

In many industries, there are ample comparable public companies that can be relied on to provide meaningful market-based indications of value. For E&P companies, such options include global integrated companies such as ExxonMobil, or larger global upstream independents such as ConocoPhillips, or a regional company such as Diamondback Energy in the Permian, or EQT Corporation in Appalachia, to name a few. While geography may not factor into the selection of guideline public companies in many industries, the operational location of an E&P company is an important factor to consider when selecting similar companies in the oil and gas industry. Commodity mix, profitability, and variances in drilling plans can be key considerations. Metrics such as EV/Flowing Barrel, or EV/EBITDA can be informative, useful and indicative of value. Drilling economics vary across plays; thus, it might not be appropriate to select a company operating in the Permian Basin as a comparable company to one operating in the Bakken Shale Play in North Dakota.

Acquisition data from industry acquisitions (typically a median from a group of transactions) can be utilized as a multiple on the subject company's performance measure(s). This will often provide a meaningful indication of value as it typically takes into account industry factors (or at least the market participants' perception of these factors) far more directly than the asset-based approach or income-based approach. For unproved reserves, the market approach can provide a meaningful indication of value. Using an EV/acreage multiple (measuring an operator's value as a function of their acreage) derived from transactions of similar companies or market data from comparable public company transactions, analysts can help gauge the value of a company's unproved reserves based on the subject company's acreage.

The market-based approach is not a perfect method. Industry transaction data may not provide for a direct consideration of specific company characteristics. Clearly, the more comparable the transactions are, the more meaningful the indication of value will be.

Synthesis of Valuation Approaches

A proper valuation will factor, to varying degrees, the indications of value developed utilizing the three approaches outlined. A valuation, however, is much more than the calculations that result in the final answer. It is the underlying analysis of a business and its unique characteristics that provide relevance and credibility to these calculations. This is why industry "rules-of-thumb" (be they some multiple of revenue or earnings, or other) can be dangerous to rely on in any meaningful transaction. Such "rules-of- thumb" fail to consider the specific characteristics of the business and, as such, often fail to deliver insightful indications of value. A business owner executing or planning a transition of ownership can enhance confidence in the decisions being made only through reliance on a complete and accurate valuation of the business.

Conclusion

Mercer Capital has long promoted the concept of managing your business as if it were going to market. In this fashion, you promote the efficiencies, goals, and disciplines that will maximize your value. Despite attempts to homogenize value through the use of simplistic rules of thumb, our experience is that each valuation is truly unique given the purpose for the valuation and the circumstances of the business.

Mercer Capital has experience valuing businesses in the oil and gas industry. We hope this information, which admittedly only scratches the surface, helps you better shop for business valuation services and understand valuation mechanics.

We encourage you to extend your business planning dialogue to include valuation, because sooner or later, a valuation is going to happen. Proactive planning and valuation services can alleviate the potential for a negative surprise that could complicate an already stressful time in your personal and business life.

For more information or to discuss a valuation or transaction issue in confidence, do not hesitate to contact us.

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