Big Oil Even Bigger: ConocoPhillips acquires Devon Energy

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Abstract

The US exploration and production (E&P) industry is experiencing a major consolidation trend, led by strong balance sheets and a focus on lowering production costs as the global demand for oil is expected to decline. In the last year, ConocoPhillips has seen some of its peers pursue mega acquisitions. Therefore, to ensure their market position, this thesis analyses a potential acquisition of Devon Energy by ConocoPhillips.

By valuing each firm as a standalone company and synergies arising from the potential merger, an offer price of 58 USD, 15% above the current market price, is proposed to offer Devon in a friendly takeover. Net synergies arising from the transaction are estimated to be 4,21 billion USD, and financing is obtained through taking on new debt of 35,4 billion USD and 2,6 billion USD in excess cash. Because of Devon's low reserves-to-production ratio, the newly acquired debt is expected to be managed by cash flows from Devon's already developed reserves. Strategically, the merger is favourable as it allows ConocoPhillips to exploit the high expected commodity prices in the short term while mitigating long-term commodity price risk.

Therefore, based on financial and strategic reasoning, ConocoPhillips is recommended to pursue the proposed transaction.

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Resumo

A indústria de exploração e produção (E&P) dos EUA está a registar uma grande tendência de consolidação, liderada por balanços sólidos e uma concentração na redução dos custos de produção, uma vez que se prevê que a procura global de petróleo venha a diminuir. No último ano, a ConocoPhillips assistiu a algumas das suas congéneres a realizarem mega aquisições. Por conseguinte, para assegurar a sua posição no mercado, esta tese analisa uma potencial aquisição da Devon Energy pela ConocoPhillips.

Avaliando cada empresa como uma empresa autónoma e as sinergias decorrentes da potencial fusão, propõe-se um preço de oferta de 58 USD, 15% acima do atual preço de mercado, para oferecer à Devon numa aquisição amigável. As sinergias líquidas resultantes da operação são estimadas em 4,21 mil milhões de dólares americanos e o financiamento é obtido através da assunção de uma nova dívida de 35,4 mil milhões de dólares americanos e de 2,6 mil milhões de dólares americanos em liquidez excedentária. Devido ao baixo rácio reservas/produção da Devon, prevê-se que a dívida recém-adquirida seja gerida pelos fluxos de tesouraria provenientes das reservas já desenvolvidas da Devon. Do ponto de vista estratégico, a concentração é favorável, uma vez que permite à ConocoPhillips explorar os elevados preços previstos dos produtos de base a curto prazo, atenuando simultaneamente o risco a longo prazo dos preços dos produtos de base.

Por conseguinte, com base num raciocínio financeiro e estratégico, recomenda-se à ConocoPhillips que prossiga a operação proposta.

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Palavras-chave: Fusões e Aquisições, Indústria de E&P, Avaliação.

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Table of Contents

I. List of Figures

II. List of Tables

1.0 Introduction

In a market influenced by increasing interest rates and inflationary pressure leading to a cooldown in mergers and acquisitions (M&A) activity in many sectors, there has been a surge of M&A in the oil and gas industry (Jelinek & Kirsch, 2024). This includes the announcement of two mega deals: ExxonMobil acquiring Pioneer Natural Resources in an all-stock transaction valued at approximately 60 billion USD (ExxonMobil, 2023), and Chevron acquiring Hess for around 53 billion USD in a deal containing both cash and stocks (Affairs, 2023). Both deals demonstrate an industry belief in high demand for fossil fuel energy going forward.

Companies within the industry have strong balance sheets after experiencing great profits after the oil price spike caused by the Russia-Ukraine war in 2022. While some of the abnormal profits will be distributed to investors as dividends, US oil and gas companies are doubling down on fossil fuel, utilizing M&A to increase their reserves. The increase in M&A is also driven by investors preferring lower-risk growth by acquiring companies with proven reserves instead of pursuing risky exploration projects.

Most M&A in the Exploration & Production (E&P) industry in the US is in the Permian Basin. Located in western Texas and south-eastern New Mexico, it is the highest-producing oil field in America, accounting for about 44 % of oil production and 17 % of natural gas, according to the Federal Reserve Bank of Dallas (*Energy in the Eleventh District*, 2024). The region is renowned for its shale reserves and the use of unconventional production methods, such as fracking, to extract resources. While on average, fracking is a more expensive production method than conventional production, it has the benefit of having a shorter production cycle (Kleinberg et al., 2018). Thus, by acquiring assets in shale areas, E&P firms can increase their production in the short to medium term and, at the same time, mitigate long-term commodity price risk.

The industry is also maturing, and the ongoing consolidations is also caused by E&P firms recognising the importance of economic of scale. The industry is expected to shrink in the long term, and lowering costs will be crucial to compete with National Oil Companies (NOCs), which often have a near monopoly on upstream domestic assets (Ferris, 2024).

ConocoPhillips is one of the largest E&P firms in the world based on production and proven reserves. Having previously been active in the M&A market, the firm has had a more conservative approach in recent years, leading to large cash reserves and low debt levels. Because of their financial strength and general market conditions, this dissertation examines a hypothetical acquisition of Devon Energy by ConocoPhillips. Devon was chosen as the target firm because it holds most of its reserves in the Permian Basin and their unique reserves-to-production (R/P) ratio.

2.0 Literature Review

The following section provides an extensive, but not exhaustive, overview of the literature that have been used in this dissertation. The initial segment delves into literature concerning mergers and acquisition (M&A), followed by a section dedicated to corporate valuation.

2.1 Mergers & Acquisitions

Mergers and Acquisitions are defined by (Rosenbaum & Pearl, 2022) as a "catch-all phrase for the purchase, sale, spin-off, and combination of companies, their subsidiaries and assets". In this thesis, an acquisition is defined as a purchase of at least 50 percent of a target company allowing the acquirer to achieve full control over the target firm.

While the strategic reasoning behind M&A varies, it is common to separate transactions into horizontal, vertical and conglomerate mergers (Berk & DeMarzo, 2024). Rosenbaum & Pearl (2022) defines the different mergers in the following way:

- **Horizontal merger:** The acquisition of a company that operates at the same stage of the value chain as the acquiring company.

- **Vertical:** Acquisition of a company operating either above or below in the value chain.

- **Conglomerate merger:** Acquisition of company in an unrelated business of the acquirer.

A further distinction is made between asset and share deals. In a share deal, the acquirer buys shares from the target firm and overtakes both the assets and liabilities. In contrast, in an asset deal, the acquirer only purchases specific assets from the target firm (Brauweiler et al., 2020). An asset deal is also known as cherry-picking. Empirical evidence of value created through M&A is presented in Appendix 10.1.1.

2.1.1 Key Drivers Behind Mergers and Acquisitions

According to the efficient market hypothesis, an investment in the stock market is a zero net present value (NPV) transaction. Although this thesis will not delve into empirical validation of this theory, it leads to many questions regarding the motivation behind M&A, especially considering such transactions are often carried out at a premium.

Academics, management, and practitioners have identified various reasons behind M&A activity. The strategic reasoning differs widely based on timing, industry, economic conditions, and the nature of the acquisition. Rosenbaum & Pearl (2022) highlight growth as a reason behind acquisitions as it, in many instances, can be cheaper and less risky compared to growing organically. They further argue that synergies are often the most important driver. This is in line with Berk & DeMarzo (2024), who state that synergies are the most common justifications managers give for pursuing acquisitions. On the other hand, (Roll, 1986) offers a different explanation centred around managerial motivations and agency costs. Another possible driver is industry shocks lead to merger waves within industries (Harford, 2005). Synergies is the driver behind the proposed transaction in this thesis, and discussion around hubris and merger waves is found in Appendix 10.1.2 and 10.1.3.

2.1.1.1 Synergies

According to Damodaran (2005) “Synergy is the additional value that is generated by combining two firms, creating opportunities that would not been available to these firms operating independently” (Damodaran, 2005, p.3) . Synergies can further be divided between operational and financial synergies.

“Operating synergies affect the operations of the combined firm and include economies of scale, increasing pricing power and higher growth potential” (Damodaran, 2005, p.3). In general, operational synergies appears in the form of increased expected cash flows, and can be separated into cost- and revenue synergies (Damodaran, 2005).

Cost synergies are also called “hard synergies” as they are much easier to quantify (Rosenbaum & Pearl, 2022). They are value increasing as one-time cost savings will increase the free cash-flow in the current period and continues cost savings affect the operating margins over the long-term. As a result, the latter will have a larger impact on the increase in firm value (Damodaran, 2005). In contrast, revenues synergies are often harder to quantify as they manifest themselves in many forms. Therefore, analysts tend to take more conservative assumptions regarding revenue synergies. Same goes for lenders and investors who are less rewarding when valuing revenue synergies (Rosenbaum & Pearl, 2022).

Financial synergies are more specific and includes tax benefits, debt capacity and excess cash. Financial synergies can appear in the form of higher cash-flows, lower discount rate or a combination of the two (Damodaran, 2005). As changes in the discount rate are more subjective, and other financial synergies often have limited value, investors tend to value operating synergies more than financial ones.

2.1.2 Payment method

Payment method is also important when considering new transactions or evaluating past deals. A cash deal is when owners of the target firm receive cash as payment, while a stock deal is when the transaction is paid for with stocks. The latter is often referred to as a stock-swap as owners of the target firm swap their stocks in the old firm for stocks in the new combined business (Berk & DeMarzo, 2024). While M&A transactions can be paid through an extensive set of different financial instruments, the majority of transactions are paid with either cash, stock or a combination of the two (Berk & DeMarzo, 2024).

The main distinction between stock and cash transactions is that in a cash deal, the acquiring firm takes on all risk connected to the realisation of synergies embedded in the premium. In contrast, this risk is shared when stock is used as payment (Rappaport & Sirower, 1999). The amount of risk related to synergies and size is important when deciding on which payment method to use. However, current valuation of the acquirer stock often is decisive. Stock deals are generally favoured when the acquirer’s stock is overvalued, while cash deals are preferred when undervalued (Rappaport & Sirower, 1999).

2.1.3 Acquisition Premium

Acquisition premium is the percentage difference between the pre-bid trading price for the target firm and the acquisition price paid if the transaction materialize (Haunschild, 1994). The premium is offered to increase the chance of closing the deal and discourage competitors from bidding.

$$Premium\ in\ percent = \frac{Price\ per\ Share\ in\ Acquisition}{Pre\ Bid\ Share\ Price} - 1$$

The size of the premium usually depends on factors like competition, motivation of the acquirer and target firm, the magnitude of the estimated acquisition gains from synergies, and the acquirer bargaining strength (Varaiya, 1987). Acquirers are willing to pay a premium as control enables them to realise the estimated synergies, which increases the value of the combined firm (Rappaport & Sirower, 1999).

2.2 Corporate Valuation

This section offers a concise overview of the various valuation methods applied in this thesis. It is not intended to be an exhaustive examination of each technique, but rather focus in highlighting the aspects that have been the most determinant in the valuations. Methods centred on both fundamental value and price are used in this dissertation, and discussion of the differences between value and price is presented in Appendix 10.1.4.

2.2.1 Discounted Cash Flow Valuation

Discounted Cash Flow (DCF) models value any asset as the present value of the expected cash flows the asset will generate, discounted by a discount rate reflecting the riskiness and time-value of the cash flows (Damodaran, 2018).

Koller et al. (2020) highlight three main DCF models: Free Cash Flow to the Firm (FCFF), Free Cash Flow to Equity (FCFE), and Adjusted Present Value (APV). The APV model is beneficial when significant changes in leverage are expected, whereas the FCFF model is typically employed when debt is stable. The FCFE model integrates the capital structure into a firm's operations and is only recommended when valuing financial firms (Koller et al., 2020).

Free cash flow to the firm (FCFF) discounts the free cash flow that will flow to all investors (equity- and debt holders) and discounts it with the Weighted Average Cost of Capital (WACC). The benefit of using this model is that it separates the value stemming from the operational and financial. While this method gives the total Enterprise Value (EV), one can easily find the equity value by subtracting debt and other non-equity claims on the asset and adding excess cash (Koller et al., 2020). Regardless of which model is used, free cash flows form exciting assets net of reinvestment, projection for growth, and the discount rate are the key drivers in a DCF valuation (Damodaran, 2018).

2.2.1.1 Forecasting Performance

Forecasted free cash flows is derived from both historical and forward-looking analysis, and results from combining past financial performance with projected market conditions and trends.

Before analysing past performance, the balance sheet and income statement must be reorganised. The balance sheet should separate operating and non-operating assets to find the capital needed to fund the operations. The income statement should be reorganised with the same principle, and net operating profit after tax (NOPAT) should be reconciled with net income. By reorganising the income statement and balance sheet, only the firm's operations are being analysed (Koller et al., 2020). This is important because it is the operations of a firm that are expected to generate future cash flows. When evaluating past performance, collecting data over multiple years is recommended, especially if the company is cyclical in nature (Damodaran, 2018).

The first decision when forecasting performance is the length of the forecasting period. All perpetuity formulas assume a steady state performance. Consequently, a firm's performance must be forecasted until it is expected to be in a steady state (Koller et al., 2020).

There are two standard forecasting methods: top-down and bottom-up. Following a top-down approach, market size is forecasted, and revenues are calculated by determining the firm's market share (Koller et al., 2020). For a mature industry like the O&G industry, third-party forecasts of markets are typically reliable, and estimating market share is more important for obtaining accurate forecasts. Over the short term, top-down forecasts depend on the firm's capability for growth, which for E&P companies depends on their proven reserves (Koller et al., 2020). Because commodity prices are highly volatile, market size is measured in quantity instead of nominal currency. The bottom-up approach builds on a historical analysis of sales (Koller et al., 2020). For the E&P sector, historical production output is the determinant factor when using the bottom-up approach for forecasting production.

In addition to quantity, prices must be forecasted to calculate revenues. For companies in the O&G industry, this is challenging as they are price takers and do not have any influence on the commodity price. Forecasted prices are also determinant for the valuation as it is a mature industry where variance in commodity prices accounts for nearly all variance in revenues (Damodaran, 2018). Damodaran (2018) proposes three different methodologies for forecasting commodity prices:

1) **Forecast cycles going forward.**
   While this method is likely to look more realistic to an outsider, it is highly sensitive to what period is being analysed, and the valuation of the company will depend more on macro forecasts than on the fundamentals of the given company.

2) **Normalise Prices**
   Since commodities have a long trading history one can try to normalize the price by looking at historical prices adjusted for inflation. Implementing normalised prices in the valuation implies that historical price is deemed the best estimate available.

3) **Use market-based prices.**
   Use future and forward prices to determine commodity prices in the coming years.

In line with recommendation from Damodaran (2018), this dissertation will use normalised-prices for estimating long-term commodity prices. In the short-term, forecasts from agencies building on market-based prices are used. The reasoning for using normalised prices in the long-term is doubts around the accuracy of macro-economic forecasts.

The firm's expenses and other cash outflows will be calculated using a production-driven approach. Since past fluctuations in commodity prices have had a major influence on revenues, nonfinancial ratios are more representative of future expenses than costs calculated as a percentage of revenues (Koller et al., 2020). The ratios should preferably be based on a long historical period to account for the large, fixed costs oil and gas firms are expected to have.

2.2.1.2 Discount Rates

This section outlines the methodology for calculating the discount rates used in the valuations. Terminal Value is discussed in Appendix 10.1.5.

2.2.1.2.1 Weighted Average Cost of Capital (WACC)

The weighted average cost of capital (WACC) is the average cost for raising new capital and reflect the riskiness of an asset or project to all security holders. WACC have four inputs: cost of equity, cost of debt, target debt-to-equity ratio, and the corporate tax rate (Koller et al., 2020).

$$WACC = \frac{E}{D+E} * r_e + \frac{D}{D+E} * r_d * (1-t) \quad (1)$$

When calculating WACC, market value for debt-, equity and any other securities the firm have outstanding must be used. Further, it requires that the firm targets a constant debt-to-equity ratio (Koller et al., 2020).

2.2.1.2.2 Cost of Equity

The cost of equity (r_e) is the return owners of the equity requires in compensation for the risk they are undertaking. To estimate the cost of equity, the capital asset pricing model (CAPM) have been used.

$$r_e = rf + \beta * [E(r_m) - rf] \ (2)$$

Cost of equity have three inputs: the risk-free rate, beta, and the market risk premium.

The risk-free rate is the return an investor can make without taking any risk. To estimate the risk-free rate, one can calculate a synthetic rate based on real interest rates and inflation or utilise government bonds as a proxy. The first method is recommended during periods with extremely low rates and quantitative easing (Koller et al., 2020). However, considering the recent rise in interest rates, this thesis argues the yield of 10-year government bonds represents a suitable proxy for the risk-free rate.

Beta represents the systematic risk a diversified investors are exposed to, and is the only input in the CAPM that is firm specific (Koller et al., 2020). To estimate historical beta of a company their excess returns are regressed on the excess return of the market. However, when valuing a company, it is the future beta that is of interest. Hence, in line with (Koller et al., 2020) recommendations the historical beta will not be used. Rather, an unlevered beta will be estimated based upon a peer group. The unlevered beta will then be relevered by the target debt-to-equity ratio to estimate the beta coefficient.

The market risk premium (MRP) will be calculated based on current market prices and financial performances of the entire stock market. The value drive formula (adjusted for equity prices) presented by (Koller et al., 2020) is reversed engineered to find the expected return of the stock market:

$$Equity\ Value = \frac{Earnings * (1 - \frac{g}{ROE})}{r_e - g} \ (3)$$

2.2.1.2.3 Cost of Debt

The cost of debt is calculated as the risk-free rate plus a spread according to the firms' respective credit rating (Damodaran, 2018). While there exist many other ways to calculate the cost of debt, this method is preferred as it derives from observational factors in the market.

2.2.3 Real Option Valuation

Uncertainty can sometimes be a source of value, particularly for those who are able to take advantage of it. Real options are the only approach to capture the potential upside of risk. Real options valuation allows us to incorporate that all decisions are not taken at the beginning of the period but are rather made based upon new information that become available as time goes by (Damodaran, 2018).

O&G companies that own undeveloped reserves have an option to delay development of the reserves based on commodity prices and volatility. In addition, the owner of such reserves is the only one that can take advantage of it, which makes it even more valuable. This real option is undervalued in traditional DCF models, as they do not account for the value of optionality (Damodaran, 2018). In other words, managers of O&G firms behave differently depending on the commodity price. Therefore, following this logic, a premium should be added to the traditional DCF valuation (and this premium should increase if volatility increases) (Damodaran, 2018).

In an ideal world, each unproven reserved should be valued by itself. However, for large O&G companies this is not feasible. Damodaran (2018) redefines the input parameters for valuing unproven reserves as real options on an aggregate level as follows:

- **Value of the underlying**

  Cumulate all the undeveloped reserves owned by a company, and estimate the value of these reserves, based on the price of the resource today and the average variable cost of extracting these reserves today.

- **Strike Price (K)**

  Aggregate cost to the company to develop all its undeveloped reserves immediately.

- **Life of the option**

  Weighted average of the lives across undeveloped reserves, with weights based on reserve quantities.

- **Variance in value of the underlying**

  Variance in the price of the underlying commodity.

- **Dividend Yield**

  Aggregate annual cash flow that will be generated, if reserves are developed, as a percentage of the value of the reserves.

The time from initiating development until the reserve start to generate cash flow must also be considered (Damodaran, 2018).

2.2.4 Net Asset Value

Following Damodaran's reasoning in the previous section, practitioners argue that standard DCF models are inadequate for valuing O&G firms. Adding to the presented argument, all standard DCF models require calculations of a terminal value, which is contradictory as O&G are finite resources. E&P firms also tend to have high CAPEX when commodity prices are high because it is profitable to develop new reserves. High CAPEX leads to the majority of the firm value being captured in the terminal value, which is unfortunate because the valuation becomes overly sensitive to the discount rate, and the terminal value does not consider that the reinvestment rate will change depending on market conditions.

Therefore, the Net Asset Valuation (NAV) methodology is the industry standard for valuing E&P firms (Jeff Schmidt, 2024). In contrast with standard DCF models, the NAV model accounts for the value of optionality. Moreover, an asset valuation is reasonable for valuing E&P firms as they are balance sheet-centric because value is created by extracting resources from the reserves carried on their balance sheet (Jeff Schmidt, 2024). Further, the method doesn't require input about terminal growth rates. As a result, the NAV method often yields a more accurate valuation of E&P firms (Jeff Schmidt, 2024).

The NAV model deployed in this dissortation will be very similar to the FCFF model with a few key differences:

- Developed reserves are valued by assuming complete depletion without replenishing the reserves.

- Proven undeveloped Reserves (PuD) are valued as a real option using the Black & Scholes model, which considers the flexibility regarding whether to develop the reserves.

- All cash flows are discounted with the unlevered cost of equity reflecting the risk of the asset.

The enterprise value resulting from the NAV model is the value of the assets. The value of equity is found by subtracting net debt and other non-equity claims.

2.2.5 Relative Valuation

The aim of a relative valuation is to find the value of an asset by looking at the market price of similar assets. The essence of the relative valuation builds on the law of one price, which says that in a market setting, assets with the same cash flows must have the same price. When considering assets with uncertain cashflows the principle is extended to present values accounting for risk and the time value of money (Berk & DeMarzo, 2024).

2.2.5.1 Comparable Valuation

When performing a relative valuation, it is vital to find a truly comparable peer group. Hence, the firm being valued must be studied to ensure one have in-depth knowledge that is exhaustive about the firm before finding other comparable companies. The key is to find the most important business and financial characteristics of the firm, and then find comparable companies in the market (Rosenbaum & Pearl, 2022).

The selection of multiples is also critical to the relative valuation and should be based on industry-specific characteristics. Key considerations include how assets are financed, differences in taxation and the industry's underlying value drivers. When using historical input, all expected non-recurring events must be removed, as they do not affect the expected cash flows in the future. Alternatively, forward-looking multiples can be deployed (Koller et al., 2020). Non-operating assets must also be excluded from valuation multiples. These assets do not contribute to the operational cash flows of the firms and should not be considered in the value multiple (Koller et al., 2020). This is in line with the core principle of valuation, which is that the value of a firm is equal to the present value of the cash flows it will generate in the future.

2.2.5.2 Precedent Transaction Analysis

In difference with comparable multiples, precedent transaction multiples are based on past transactions. The core principles stay the same, but timing is important. Generally, recent transactions are more important as they took place on more equal market conditions and should be given more weight in the valuation (Rosenbaum & Pearl, 2022). Under normal market conditions, precedents tend to give higher valuation than comps as control premium and synergies are priced into the transaction (Rosenbaum & Pearl, 2022).

3.0 Market Analysis

In this section the oil and gas industry will be analysed. The focus will be on market dynamics, drivers, trends, and major players in the O&G market.

3.1 Market Dynamics

In addition to the dynamics analysed in this section, risk factors are discussed in Appendix 10.2.1

3.1.1 Size of the Market

Between 2018 and 2023, the O&G industry generated annual revenues of around 3,5 trillion USD. Despite a decrease in the global energy market share, the oil and gas industry still supplies over half of the world's energy, according to the International Energy Agency (2023).

According to IBISWorld, the E&P industry will be the world's largest industry in 2024 based on expected revenues of 5253 billion USD (*IBISWorld - Industry Market Research, Reports, and Statistics*, 2024). Thus, despite efforts to shift towards clean energy sources, the demand for oil and gas is expected to continue for many years, evident in the size of the industry.

3.1.2 Segments

Kramer (2023) states that traditionally, the O&G industry can be broken into three segments:

- ***Upstream***
  Also called exploration and production (E&P), this segment involves firms that search for and extract natural resources. This segment is associated with high risk because it is capital- and time-intensive, and nearly all cash flows are linked to commodity prices (Damodaran, 2018).

- ***Midstream***
  Firms in the midstream sector focus on the logistics around O&G. They primarily move raw materials to refineries and finished products to consumers.

- ***Downstream***
  The downstream sector includes refineries and gas stations. Refineries process raw O&G to make products sold to consumers in the market.

Some companies only operate within one sector while others, called integrated O&G companies operates within at least two of the segments (Kramer, 2023).

3.1.3 Major Players & OPEC

The major players in the O&G industry can be separated into Independents, International Oil Companies (IOCs), national oil companies (NOCs).

Independent oil companies are firms that only operate within one segment. These pure play firms are often much smaller than IOCs and NOCs.

International Oil Companies (IOCs) operates within multiple countries across the value chain (Library of Congress, 2024). By having global operations, they have diversified reserves mitigating both geopolitical and environmental risks. They also benefit from more stable cash-flows by having revenue streams across the different segments. The largest IOCs are often referred to as supermajors or big oil. While the participant in this definition varies, ExxonMobil, Chevron, BP, Shell, Eni and TotalEnergies are always included. Despite being major companies, IOCs accounts for only 13 percent of the world's production (International Energy Agency, 2023). Hence, like independents, IOCs are price takers and have no influence on commodity prices.

NOCs are companies that are controlled by governments and have both economic and political interests. They produce 55 percent of all oil and gas globally, and their market share is increasing. In countries where NOCs operate, they tend to dominate domestic production, controlling, on average, around 75 per cent of domestic production (Heller & Mihalyi, 2019).

Among the NOCs, the market participants with the most market power are the Organization of the Petroleum Exporting Countries (OPEC) members. OPEC was founded in 1960 by Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela and has 12 members today (*OPEC : Brief History*, 2024). Additionally, several other countries, including Russia, Mexico, and Brazil, have joined OPEC in its collective efforts and are collectively referred to as OPEC+. The organisation state that their goal is to unify and coordinate petroleum policies to secure stable and efficient supply of oil to the market. However, in practise the organization works a cartel coordinating production to influence the oil price and maximize profits (Sean Hill & Owen Comstock, 2023). In contrast, non-OPEC members always produce at their maximum capacity, and do not attempt to influence the oil price.

OPEC market power is significant as they accounted for 38 percent of crude oil production in 2022. The organisation also controls most the world's oil reserves. The organisation is also active in the natural gas industry, but they are significantly smaller and do not obtain the same market power.

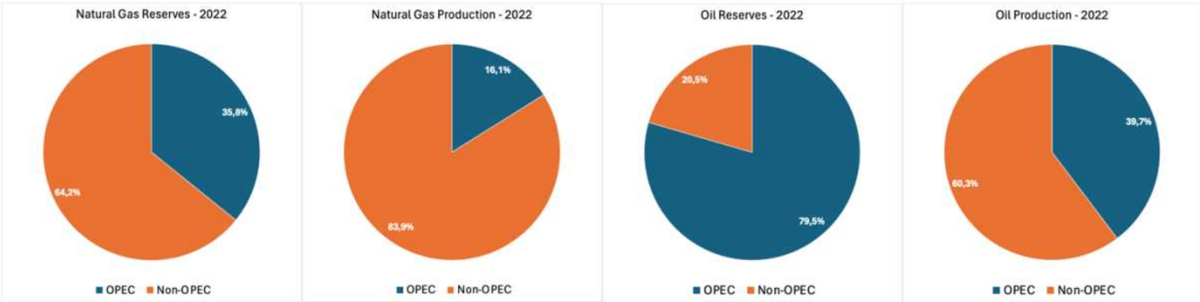

Figure 1 – OPEC – Market Share of Production & Proven Reserves
Source: Statista – Countries & Regions

OPEC's market share of production and reserves warrants that they will continue to have influence on the oil price going forward. Lately, OPEC+ started to cut oil production in November 2022 and has now agreed to hold back production until July 2024. The current production cut by OPEC+ is around 5 percent of global supply and is accruing significant revenue losses for OPEC+ members (Mnyanda & Wilson, 2024).

3.2 Market Drivers

The oil and gas industry are complex and affected by economic, political, and geographic factors. Still, being commodities, the fundamental driver behind the price is supply and demand. Differences between oil and gas, analysis of the historical oil price, and benchmarks is presented in Appendix 10.2.2, 10.2.3 and 10.2.4.

3.2.1 Supply

If none of the previously mentioned risk factors materialize, production forecasts of O&G are quite accurate. Historical production levels, knowledge about reserves, and the usage of satellite data and other monitoring tools provide good estimates of world production during normal times (Sættem et al., 2024.). Moreover, increasing O&G production is time-intensive (although this varies greatly between geographics), making it easier to forecast production.

Investments in the O&G industry follow a cyclical pattern. Large investments are pursued when forecasted prices are high because of higher margins and profitability. The investments lead to increased reserves and higher production levels. After periods with large investments and increasing production, the supply side outpaces demand, leading to lower prices and reduced investments. The investment pattern is not unique to the O&G industry but is typical for cyclical industries.

3.2.2 Demand

In contrast to supply, demand is challenging to forecast. Economic activity, population growth, consumer behaviour, regulations, and global events are important drivers. Since O&G is consumed by humans, one needs to predict human behaviour to accurately forecast demand. Hence, forecasting demand is highly complex. While numerous factors influence demand, the main drivers are energy demand and energy composition. Appendix 10.2.5 and 10.2.6 presents an analysis of forecasted demand and composition. In short, crude oil demand is expected to increase in the next few years but decline in the long term. This section focuses on the consequences of the anticipated peak oil demand.

The expected peak in oil demand is a critical point for the O&G industry, and predictions from industry insiders diverge vastly on when this will occur. The International Energy Agency (IEA) predicts peak oil demand will occur before 2030, while the US-based Energy Information Agency (EIA) believes it will happen between 2030 and 2040. OPEC has stated that it does not foresee any peak in oil demand until at least 2050. Other major corporations and constitutions have equally deviating forecasts. Expectations on what happens after peak demand are also divergent. Some expect oil demand to decrease rapidly, while others expect a more moderate decline over a more extended period.

Determining the exact timing of peak demand is not possible. However, there is a broad consensus in the market that peak demand will occur, and that oil demand will decline thereafter. This dissertation uses scenarios and sensitivity analysis to outline the consequences of various timing for peak demand and decline rates.

Regardless of the exact timing and decline rate for the industry, Spencer & Fattouh (2021) offer intriguing insights. The approaching peak demand for oil will likely affect the strategy of countries and corporations operating in the industry. Historically, national and privately owned E&P companies have spent large amounts of their resources exploring new reserves. The rationale has been that one can extract and sell oil later, possibly even at a higher price, by accumulating reserves now. The expectation has been that oil is a finite resource and that holding large reserves when the supply side starts to decline would be very profitable. Now, when the expected peak in the oil industry has shifted from the supply side to the demand side, this strategy is no longer viable. Instead, there is an incentive to extract resources quickly before demand decreases. This could result in a fundamental shift in the market and make it more competitive, leading to lower prices (Spencer & Fattouh, 2021).

3.3 US Oil & Gas Industry

The O&G market in the US has become increasingly important in the last years after reclaiming its status as the world's largest oil and gas producer. The increase in US production started in the early 2000s after increased commodity prices led to technological breakthroughs in horizontal drilling and fracking, which started the shale revolution (Majumdar & Mittal, 2018). Figure 2 shows that the US became the world's largest producer of oil and condensates in 2018 after rapidly gaining market share since the 2010s.

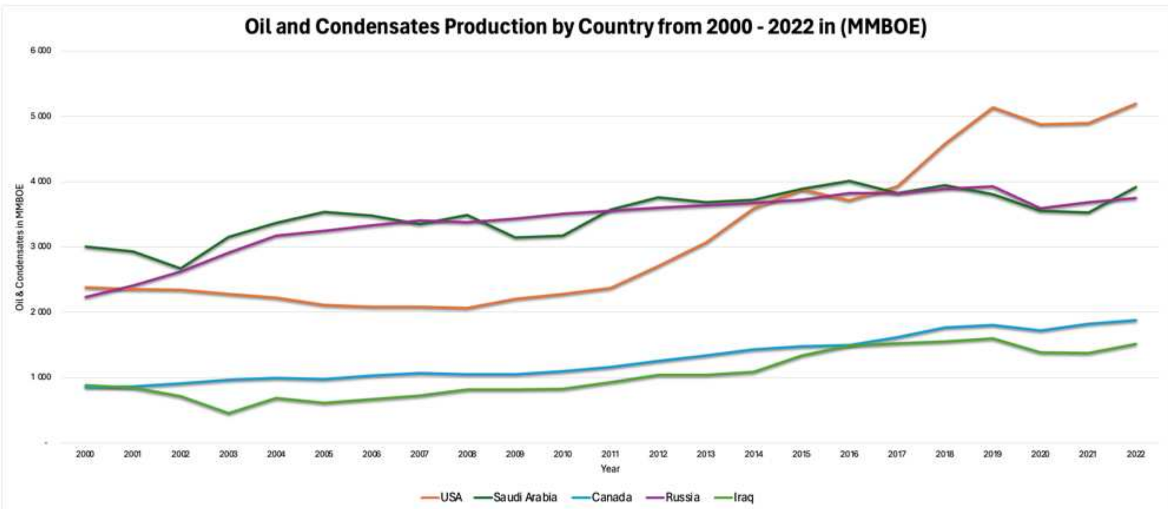

Figure 2 – Oil Production for Selected Countries 2000 – 2022
*Source:(*Oil Production*, n.d.).*

The increase in production from shale oil has made the US a net exporter of oil and condensates since 2020 (*Oil Imports and Exports - EIA*, 2024) and they are today the largest exporter of oil when excluding countries within the middle east (*Global Oil Exporters by Region 2022*, 2022). The increasing self-reliance and exports by the United States are now challenging OPEC's market power. However, on average, shale oil is more expensive to extract than oil in the Middle East, and one of the largest price risks the industry faces today is OPEC flooding the market to make shale oil less profitable and reduce US production ("US Frackers Return to Haunt OPEC's Pricing Strategy," 2023).

The US upstream industry is currently experiencing consolidations as the industry matures. Previously, the upstream segment in the US comprised thousands of small drillers, often called wildcatters. However, there is now a clear trend of large publicly traded companies acquiring firms with proven reserves instead of undertaking exploration projects that will not produce oil for many years. If Diamondback's acquisition of Endeavor Energy goes through, more than 50% of the Permian Basin will be controlled by ten companies (McCormick, 2024b).

The consolidation trend could be driven by the shift from peak supply to peak demand outlined in the previous section. Focusing resources on acquiring proven reserves instead of exploring new areas lowers long-term commodity price risk. Moreover, lowring production costs by capturing benefits from economies of scale will become increasingly important if the industry experiences lower prices.

The increase in M&A activity will affect the US oil production going forward. Production is still expected to rise in 2024 and 2025. However, production will likely stall as the large players in the E&P are using their resources to acquire assets and firms with proven reserves instead of exploring new areas. This ownership change leads to fewer investments in new oil rigs and reserves (McCormick, 2024a). The latter results from publicly owned firms emphasizing returning money to shareholders instead of investing in risky exploration projects and new oil rigs (McCormick, 2024a).

4.0 Company Analysis

The companies involved in the proposed transaction have undergone extensive analysis. This section provides an overview of ConocoPhillips and Devon Energy. All information is sourced from the firm's annual reports unless stated otherwise.

4.1 ConocoPhillips

ConocoPhillips is the result of a merger between Conoco and Phillips in 2002. The newly merged company formed the sixth largest publicly traded oil company at that time and operated as an integrated oil company with operations in the upstream and downstream segment. In 2012, ConocoPhillips spun off its downstream assets into Phillips 66, and the two companies became completely separated. Today, ConocoPhillips is the world's largest independent E&P firm based on its production and reserve levels. Through subsidiaries, the firm is also active in the midstream segment.

ConocoPhillips operates in 13 countries and employs nearly 10 000 people. Most production occurs in the US through unconventional production methods in shale areas. A geographical breakdown of its 2023 revenues reveals that 74% of revenues stem from the US. Within the US, the largest production sites are in the Permian Basin, accounting for 67% of the revenues in the lower 48. The company's diversified portfolio includes reserves of crude oil-, liquified natural gas (LNG), natural gas and bitumen. Crude oil production is the primary revenue driver, accounting for 72% of total revenues in 2023. However, as revenues follow the commodity price closely, this varies year over year.

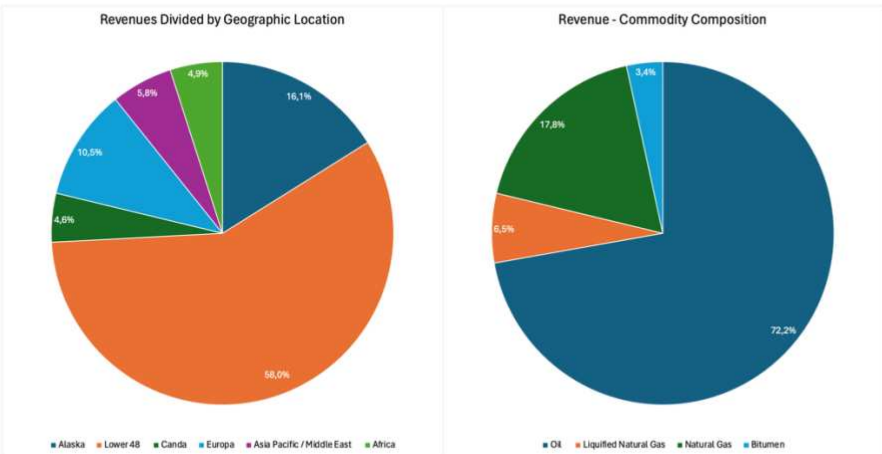

Figure 3 – ConocoPhillips Revenues 2023 divided by region and commodity
Source: Annual Report

The company has grown both organically and through acquisitions. In 2020, ConocoPhillips purchased Concho Resources for 13,3 billion USD in a stock transaction. This was the largest transaction in shale oil since 2011, showcasing ConocoPhillips' experience and willingness to undertake large acquisitions.

ConocoPhillips has attained high production levels. A drop in production is noticeable from 2017 until 2020, but since then, they have reached an all-time high. Figure 4 exhibits production in million barrels of oil equivalent per day since the spin-off in 2012.

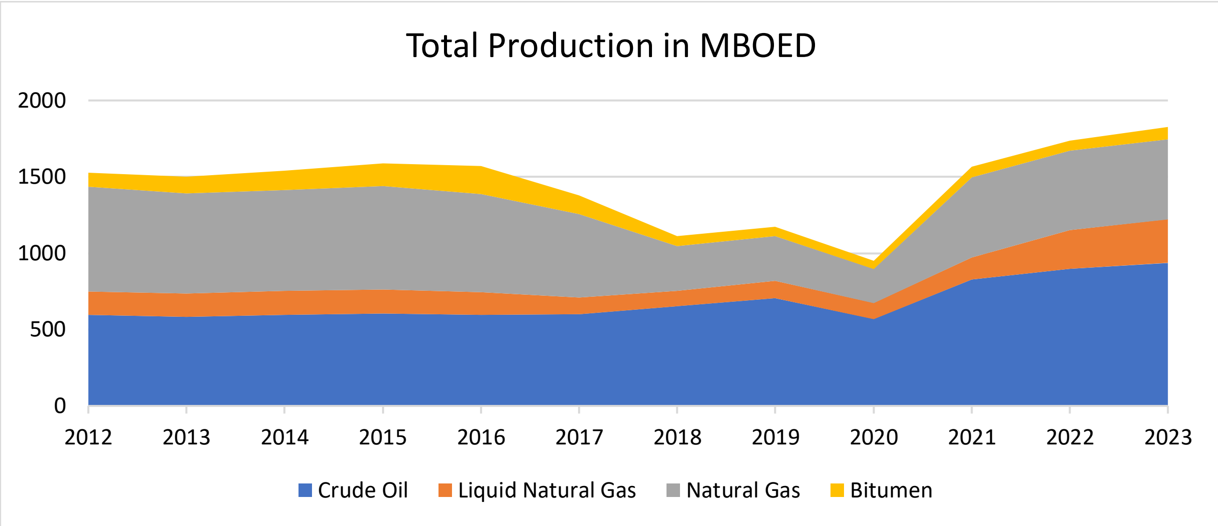

Figure 4 – ConocoPhillips Production in MBOED 2012 – 2023
Source: Annual Report

In the latter years, they have increased their reserves, having a replacement ratio of 123% in 2023. Moreover, 85% of their reserves are in countries that are part of OCED, which historically has been beneficial as the countries are more politically stable. Figure 5 showcases their net proven reserves at the end of 2023 in million barrels of oil equivalent divided by commodity.

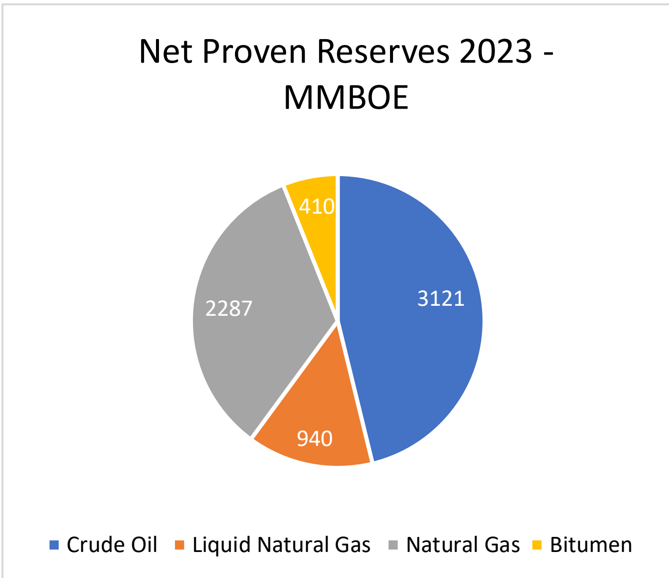

Figure 5 – ConocoPhillips Proven Reserves 2023
Source: Annual Report

Figure 6 shows ConocoPhillips' stock performance over the last ten years compared to the S&P 500 and the S&P 500 Energy Index.

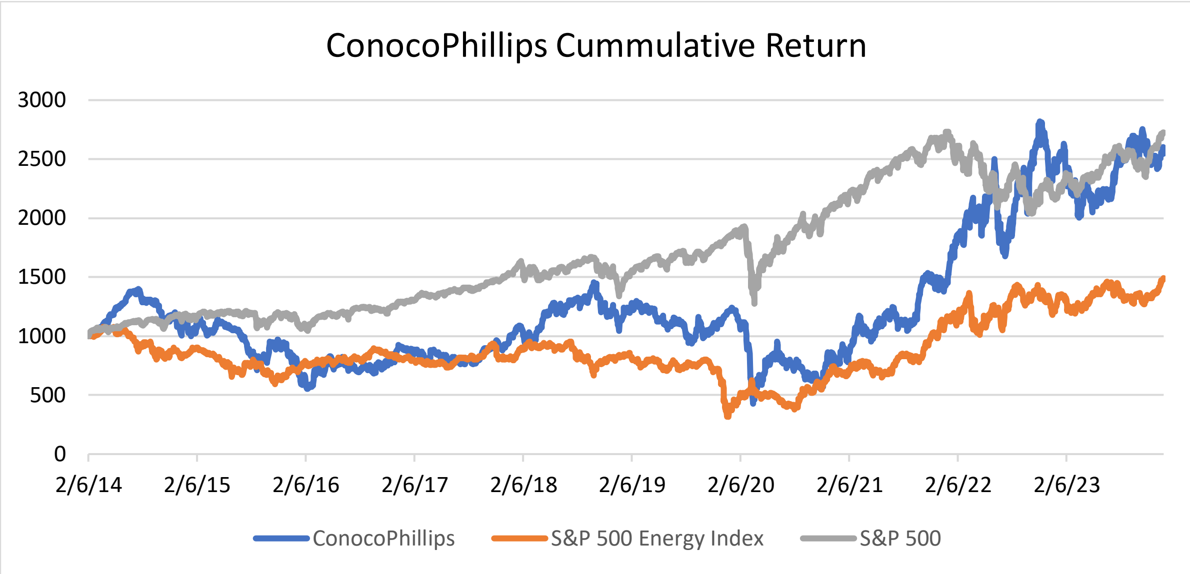

Figure 6 – ConocoPhillips Cumulative Return

ConocoPhillips followed the S&P 500 Energy index closely until 2020 but has since outperformed the index. The merger with Concho in 2020 increased the firm's production right before the surge in commodity prices in 2021, and production cuts by OPEC, high geopolitical risk, and a focus on energy security have held energy prices high, making ConocoPhillips extremely profitable.

4.2 Devon Energy

Devon Energy is a Fortune 500 company founded in Oklahoma in 1972, where it is still headquartered. The company's operations are primarily in the E&P segment, but it also has some activities in the midstream segment through strategic partnerships. All of Devon's operations are in the US, and around 65% of production stems from the Delaware Basin in the Permian.

Devon Energy has a portfolio of oil, natural gas, and LNG assets. In the early 2010s, it also produced Bitumen in Canada, but in 2014, it divested all its Canadian assets. The company have previously carried high amounts of leverage but has decreased its debt in recent years. Currently, Devon is rated a stable BBB by Standard and Poor's.

Production dropped significantly in 2018. The drop resulted from low commodity prices leading up to 2018, forcing Devon to divest parts of their assets. After undertaking significant divestments, the company focused their resources on the US, specifically in the Permian Basin. The shift in strategy yielded better results for the company and put it in a good position for the post-pandemic energy price surge. Devon will continue to focus on the Permian and has publicly stated that 60% of CAPEX will be in that region.

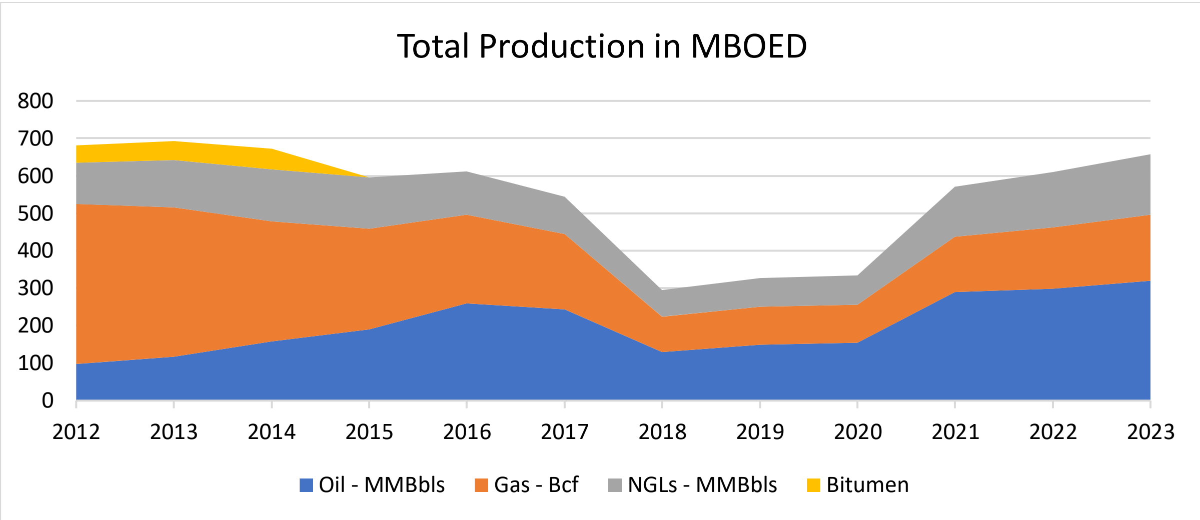

Figure 7 – Devon Energy Production in MBOED 2012-2023
Source: Annual Report

The less profitable asset in Devon's portfolio in the years leading up to 2018 is also evident in the firm's stock price. Devon has lagged the S&P 500 Energy index for years, but after the shift in strategy and the surging oil prices in 2021, the firm outperformed its peers leading up to 2022. After 2022, they have underperformed their peer group, which largely can be attributed to Devon reducing dividends from a yearly dividend of 5,17 USD in 2022 to 2,87 USD in 2023. The company is still committed to returning most of its free cash flow to investors. However, it appears that management favours using buybacks over cash dividends to maintain greater flexibility.

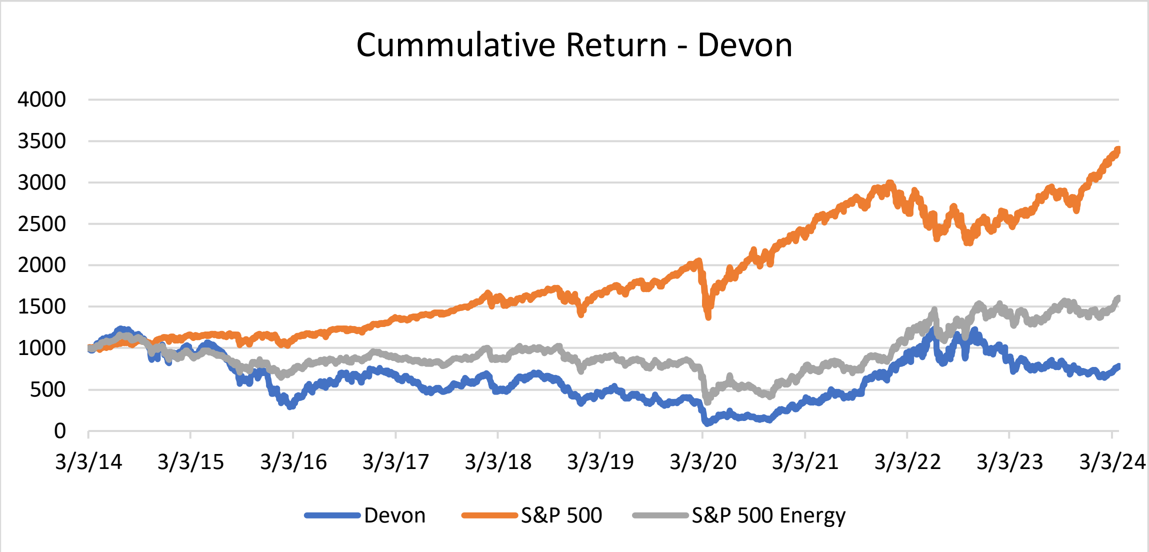

Figure 8 – Devon Energy Cumulative Return 2014 – 2024

At the end of 2023, the company held reserves totalling 1639 million barrels of oil and equivalents, of which 43% were oil. Devon had a replacement ratio of 134% in 2023, and most of the newly acquired resources were in the Delaware Basin.

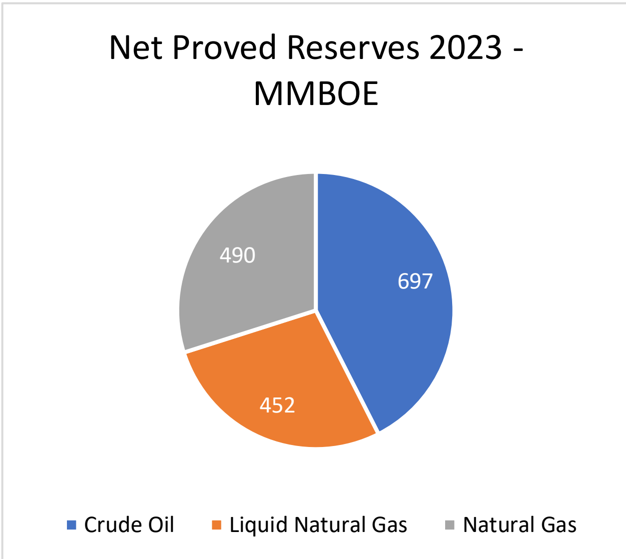

Figure 9 – Devon Energy Proven Reserves 2023
Source: Annual Report

The company has been involved in several acquisitions throughout the years. Most recently, this has been through asset purchases in the Permian Basin after shifting its focus to the US. There are currently reports of Devon possibly bidding for Enerplus, but neither company has made any public comments. If this deal were to happen, Devon would be less reliant on the Permian, as Enerplus primarily holds assets in North Dakota and Pennsylvania (David French, 2024). However, given the relatively small size of Enerplus, an eventual transaction would not alter Devon's profile.

5.0 Deal argument

The rationale behind the proposed transaction arises from market- and company-specific reasoning.

5.1 Market Conditions

As described in the market analysis, there is a current consolidation trend in the upstream segment in the US. The proposed acquisition of Devon Energy by ConocoPhillips is reasoned by the same rationale as other current mergers in the industry presented in the introduction. E&P firms are consolidating to capture synergies arising from economics of scale. Lowering costs is crucial as the industry is expected to shrink, and actors describe the situation as an "arms race to be the last one standing in the oil industry" (Board, 2023). Moreover, the high oil price incentivises industry players to increase their production levels as they are experiencing large profits. Still, given the uncertainty regarding future demand for oil, firms want to avoid long-term exploration projects that will not be cash flow positive for years.

The current situation leads large publicly owned companies to acquire smaller firms with already developed reserves. At the same time, owners of target firms can cash out while commodity prices and valuations of O&G firms are relatively high. The latter is quite unusual in the O&G industry, as M&A activity usually increases when the industry faces low commodity prices (Bob Evans et al., 2016).

As consolidating benefits both the target and acquiring firm, the recently announced deals are carried out with low premiums. The acquisition of Pioneer Natural Resources and Chevron's acquisition of Hess have quoted premium around 15% (Table 7). The low premiums make it easier to pursue transactions as it increases the likelihood of creating value through M&A.

5.2 Target Firm

Even in a market environment that incentivises growth through M&A, creating value through an acquisition is dependent on finding the correct target firm.

Devon's portfolio consists of proven developed and undeveloped reserves and mineral rights in thousands of acres of undeveloped land in the US. Their assets are exclusively located on land in shale regions, and hydraulic fracturing (fracking) is the primary production method. Wells in shale regions have a faster production cycle than conventional wells, with most resources extracted within the first years (Kleinberg et al., 2018). Additionally, reserves in shale areas are less time-intensive to develop (Nick Lioudis, 2024), making them more flexible and allowing firms to scale up or down production depending on market conditions. Given the long-term uncertainty in the industry, this is highly beneficial and an important reason for why E&P in the US is focusing their resources in the Permian Basin.

Besides owning reserves in attractive regions, Devon stands out from other US E&P firms due to its low reserves-to-production ratio (R/P). By acquiring Devon, ConocoPhillips would increase its production output massively in the short-to-medium term while mitigating long-term commodity price risk compared to pursuing exploration projects or other takeover candidates. The low R/P also makes the deal more flexible regarding payment method, as most of the assets reflecting Devon's price already yield a positive free cash flow with current commodity prices. Hence, the possibility of paying with cash becomes a more viable option.

Merging the two firms is also expected to generate synergies. The combined firm would have the opportunity to optimize development and production across a more extensive portfolio of wells. Depending on future market conditions, this will lead to lower capital expenditures or increased revenues. The effect of portfolio optimization is expected to be amplified by ConocoPhillips's superior financial strength. The combined firm is predicted to utilize Devon's assets more efficiently than Devon can as a standalone company because of the capital intensity of developing new reserves. Hence, by optimizing production and development across the combined portfolio, the merged firm is expected to have a higher free cash flow going forward compared to the individual firms operating as separate entities.

Cost synergies are anticipated to arise from economies of scale. The marginal overhead and administrative costs for increasing production are low, and the merged firm is expected to be able to reduce these expenses drastically. Additionally, increased efficiency stemming from shared infrastructure and supply chain optimization is expected to be significant. ConocoPhillips and Devon Energy operate mainly in the same areas. Figure 10 illustrates the location of Devon Energy's operations and ConocoPhillips's lower 48 operations.

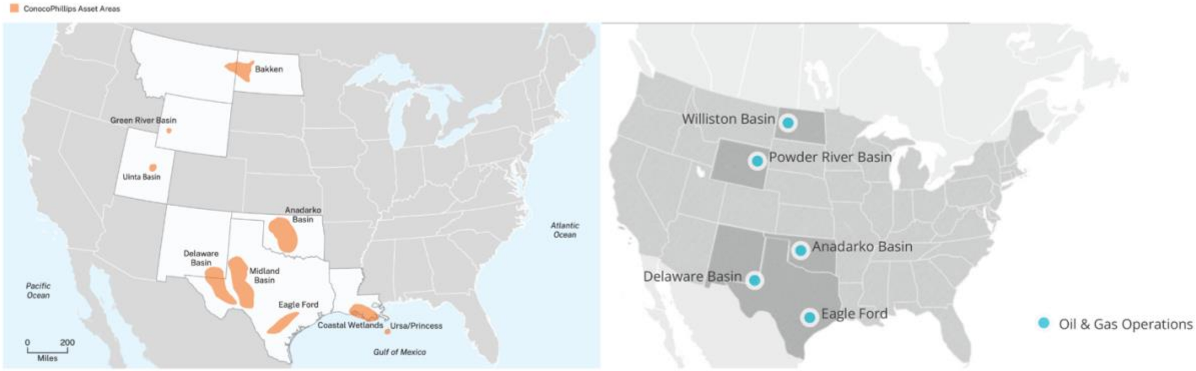

Figure 10 – Production Location for Devon and ConocoPhillips
Source: Firms Website

When breaking down ConocoPhillips' production in the lower 48 and Devon's total production in 2023, the similarities between the geographical locations of the firms' operations are even more evident.

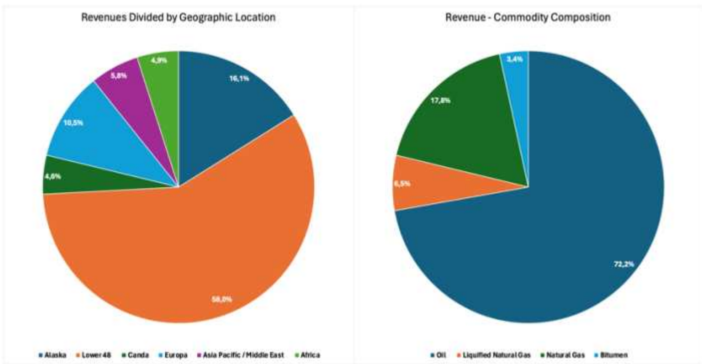

Figure 11 – Production by Region (Devon Energy & ConocoPhillips)
Source: Annual Reports

Both firms have most of their production in the Delaware Basin. Further, their operations overlap in Eagle Ford, Anadarko Basin, and Bakken. Closer analyses also reveal that they operate in many of the same sub-regions within these areas. A quantified breakdown of cost synergies will be provided in a subsequent section and derives largely from the close geographics of the firm's operations in the US.

6.0 Firm Valuation

This section conducts a standalone valuation of Devon Energy and ConocoPhillips using the methods outlined in the literature review. The methodology behind both valuations is identical, but as Devon is the target firm, it is described in the most detail. The valuation date is set to the 1st of May 2024.

6.1 Devon Energy

The valuation of Devon Energy is based on multiple valuation methods. A discussion of the different methods and the target price is presented at the end of this section. The closing price on the valuation date is 50,4 USD.

6.1.1 Free Cash-Flow to the Firm

Devon's free cash flow is forecasted until the industry is expected to be in a steady state. Because of the uncertainty regarding when peak oil demand will occur, three separate scenarios are considered: early, intermediate, and late, with forecasts until 2030, 2035, and 2040.

Global production forecast relies on 3rd party suppliers. Due to large variances in long-term forecasts, a multitude of sources is reflected in the forecast. For 2024 and 2025, data is retrieved from the EIA. Devon's production is calculated as a percentage of global production. As the firm has undergone large changes in its portfolio in recent years, only the last three years are considered as they better reflect the future of the company. In this period, Devon has accounted for 0,33% of global oil production, and their market share within the natural gas segment have risen from 0,42- to 0,51%. Going forward, the expected market share of oil is 0,33%, while natural gas market share is expected to continue a moderate growth before stabilising at 0,55%. Of natural gas, 48% is expected to be liquid based on historical production composition.

The forecasted commodity prices stem from the EIA for 2024 and 2025. After that, the oil price is forecasted based on the inflation-adjusted average price over the last 41 years (the historical period is chosen based on data availability for Brent crude and WTI) adjusted for expected inflation. Natural gas prices after 2025 are set lower than their historical average. The reason for the lower prices is analysing the realised prices Devon has received for their natural gas compared to the Henry Hub index (HHI) and long-term forecasts. After 2025, long-term prices are set to 2,75 USD per million British thermal units (MMBtu), which aligns with Fitch Ratings' projections. LNG prices are derived as a function of the oil price in line with industry practise.

Recurring expenses are calculated using a production-driven approach. Each line item is calculated as cost per unit produced adjusted for expected inflation. The timeframe analysed depends on the expense's nature and considers the recent changes in Devon's portfolio. The most important costs and investments per barrel of oil equivalent is presented in table 1.

Cost-drivers per Barrel of Oil Equivalent Produced	
Production Expense	10,31
Taxes other than income Taxes	3,12
Exploration Expense	0,66
General and Administrative Expenses	1,88
Depreciation, Depletion and Amortization	12,69
Capital Expenditure (CAPEX)	13,62
Acquisition of Property and Equipment	2,39
Working Capital	2,43

Table 1 – Devon Energy Cost Drivers

Capital expenditure (CAPEX) and working capital are calculated using the same methodology as expenses. In 2024, investments are compared against the forward guidance given by the management. The forecasted investments align with the provided guidance, though marginally higher. Working capital is projected to increase significantly in 2024 as Devon's cash balance was low at the end of 2023 compared to historical levels and their peer group.

Income tax is set at the federal tax rate of 21%. Devon is also subject to state taxes linked to the origin of its revenues, accounted for in the "Taxes other than Income Taxes" line item. These taxes and DD&A are calculated based on the location of their current production and are subject to change if the firm shifts its production geographically.

The free cash-flow to the firm is presented in the appendix 10.3.1.

Cost of debt is calculated by adding a credit spread to the risk-free rate. Devon's current credit rating is BBB, which yields a spread of 1,74% according to Damodaran's synthetic credit spread (*Ratings and Coverage Ratios*, 2024). Consequently, cost of debt is 6,16%.

The levered beta is calculated by first taking the median unlevered beta of the peer group, which is 1,6, and then relevering using the long-term debt-to-equity ratio of 25%. Thus, the equity beta is calculated to be 2,02. Using the CAPM equation (2), the cost of equity is 13,12%.

To avoid the circularity issue, Devon's long-term target debt-to-equity ratio is used when calculating WACC. Incorporating the cost of debt, cost of equity, and effective tax rate in the WACC equation (1) yields a weighted average cost of capital of 11,39%.

The terminal value is calculated using the formula presented in Appendix 10.1.5. The forecasted period covers the period until peak oil demand, and the industry is expected to decline thereafter. Accounting for growth in the natural gas segment and expected long-term inflation of 2%, the terminal growth rate is set at 0%.

By adding the value of the midstream segment and other non-operating assets and subtracting interest-bearing debt and non-controlling interest, a share price of 41,14 USD in the early-, 46,42 USD in the intermediate- and 47,48 USD in the late scenario is calculated. The probability for each scenario is set at 20, 50 and 30 percent for the early, intermediate, and late scenario. Thus, the intrinsic value is 45,68 USD, implying a current overvaluation of 9,36%.

The sensitivity analysis underlines the stock price sensitivity to changes in the oil price and growth rate. Devon is highly sensitive to changes in the oil price, which is the firm's primary revenue driver.

Share Price Subject to Change in Oil Price and Terminal Growth								
		Deviation from Forecasted Oil Price						
		-$15	-$10	-$5	$0	$5	$10	$15
Terminal Growth Rate	-3%	24,20	30,39	36,58	42,77	48,97	55,16	61,35
	-2%	24,78	31,05	37,33	43,60	49,88	56,15	62,42
	-1%	25,45	31,82	38,19	44,56	50,93	57,30	63,67
	0%	26,24	32,72	39,20	**45,68**	52,17	58,65	65,13
	1%	27,17	33,79	40,40	47,02	53,63	60,25	66,86
	2%	28,30	35,08	41,85	48,63	55,40	62,18	68,95
	3%	29,69	36,66	43,64	50,61	57,58	64,55	71,53

Table 2 – Sensitivity Matrix Terminal Growth Rate and Oil Price

6.1.2 Net Asset Value

The net asset valuation follows a sum-of-parts methodology. The enterprise value is decomposed into the value of developed- and undeveloped reserves, midstream operations, and other non-operating assets carried on the balance sheet.

6.1.2.1 Developed Reserves

The net asset value of the developed reserves is the discounted free cash flow from depleting the natural resources without replenishing the reserves. To consider that Devon's operations are spread over the US, the oil wells are divided into geographic segments, and valued separately as a portfolio of wells. Data about developed reserves in each segment is collected from the annual report and showcased in table 3.

Developed Reserves per Geographic Segment	Crude Oil - MMbbl	Natural Gas - Bcf	Natural Gas Liquid - MMbbl	Total MMBOE
Delaware Basin	464	241	235	739
Anadarko Basin	42	120	85	147
Eagle Ford	60	20	21	84
Williston Basin	83	22	21	108
Powder River Basin	36	8	5	42
Other	11	1	4	15
Total Developed Reserve	**696**	**412**	**371**	**1 136**

Table 3 – Devon Energy Developed Reserves 2023

Forecasted production builds on production level in 2023 for each geographic area. To account for the decrease in active wells as the reserves are depleted, the model incurs a yearly production decline rate of 5%. Production for each segment in 2023 is the starting point and is presented in table 4.

Production per Geographic Segment	Crude Oil - MBD	Natural Gas - MMCFD	Natural Gas Liquid - MBD	Total Daily Production - MBOED
Delaware Basin	211	657	107	428
Anadarko Basin	**14**	238	28	82
Eagle Ford	42	82	15	71
Williston Basin	36	58	9	55
Powder River Basin	14	18	2	19
Other	3	1	1	4
Total Production	**320**	**1 054**	**162**	**658**

Table 4 – Devon Energy – Production by Region 2023

Commodity prices, production costs, and changes in working capital are estimated using the same methodology as in section 6.1.1 Free Cash Flow to the Firm. Since this is an asset-based valuation, only costs related to production is considered. The income tax rate is set to 21%, and state taxes related to revenue and production are calculated as a cost per barrel produced.

To estimate CAPEX for the developed reserves, break-even prices from the Dallas Fed Energy Survey are used. The average break-even price after weighting for location is just shy of 40 USD for Devon's assets. Keeping all other inputs fixed and setting the oil price at the calculated break-even price, annual CAPEX is derived as a function of production. Note that all costs were included when calculating CAPEX as the respondents of the survey estimate break-even prices based on a "going concern" premises. The resulting CAPEX per BOE is 1,65 USD, amounting to 2448 million USD for the entire period.

The free cash flows are discounted to find the net present value. The standard discount rate in the O&G industry is 10%. However, this dissertation argues that the standardized discount rate is more suitable for accounting purposes than calculating fundamental value. Thus, the cash flows are discounted with the unlevered cost of equity at 11,29%, yielding a fundamental value of 32,27 billion USD.

6.1.2.1 Undeveloped Reserves

Devon does not publish detailed information about their undeveloped reserves, so they are valued as one portfolio of wells. To consider the optionality attached to the reserves, they are valued as a real option using the Black-Scholes Model.

The valuation of the underlying asset (S) is calculated using the same methodology as the developed reserves, with two adjustments. Current market prices are used instead of forecasted, and the value is discounted by an additional two years to adjust for development delay. The strike price (K) is set to the PV of CAPEX for developing and extracting the resources derived in the same manner as previously, except using break-even prices for developing new reserves. The risk of the undeveloped reserves is calculated as a weighted average of the standard deviation for each commodity using five years of data with monthly measuring frequency. The life of the option is the number of years it will take to deplete 90% of the PV of the reserves. The extraction time was adjusted as the most valuable commodities (oil and LNG) are depleted first, while natural gas production will continue for an extended period. The cost of delay is the average PV of the free cash flow expressed in a percentage of the underlying value. Table 5 presents the metric for each input and calculated value of the undeveloped reserves.

Black-Scholes Model (Undeveloped Reserves)	
Input Parameters	
Value of Underlying Asset (S)	5 567
Strike Price (K)	2 196
Life of the Option (t)	8
Variance in Underlying Asset (std)	15,62%
Risk-free Interest Rate	4,42%
Dividend Yield (Cost of Delay)	3,96%
Calculations	
N (d1)	0,9920
N (d2)	0,9754
Valuation	
Synthethic Option	2 519
Intrinsic Value	3 371
Valuation - Undeveloped Reserves	**3 371**

Table 5 – Valuation Undeveloped Reserves BS-model – Devon

The Black-Scholes model values the call option at 2,52 billion USD. The synthetic option is deep in the money, and the PV of initiating development is higher than the option. Since this is a valuation of Devon's assets, the undeveloped reserves are valued at their intrinsic value of 3,37 billion USD. Potential synergies released from obtaining control over the PuD are discussed in a subsequent section.

6.1.2.2 Midstream Operations & Non-Operating Assets

Devon is using the equity method to account for its interest in a joint venture focused on the midstream segment and values it at 660 million USD. The midstream segment is a relatively small part of the enterprise value, so Devon's fair-value measurement is used in the enterprise value.

Undeveloped land is valued by precedent transactions in shale regions in the US. Devon holds approximately the right-of-resources in 728 thousand acres of undeveloped land, and the total value is estimated to be 4,73 billion USD. Other non-operating assets are PP&E not used in production valued at cost.

6.1.2.3 Net Asset Valuation

The net asset value of Devon's assets is summarized in table 6.

Net Asset Valuation - Devon Energy	
Net Asset Value - Developed Reserves	32 268
Net Asset Value - Undeveloped Reserves	3 371
Valuation - Investments - Midstream	660
Valuation - Undeveloped Land	4 732
Valuation - Non Operating Assets	319
Enterprise Value	**41 350**
Net Debt	5 280
Non- Controlling Interest	524
Market Capitalization	35 547
Number of Outstanding Shares (millions)	632
Share Price	**56,24**

Table 6 – Net Asset Value – Devon

The net asset valuation of Devon yields an intrinsic valuation of 41,35 billion USD. Subtracting net debt and NCI results in a share price of 56,24 USD, which implies an undervaluation of 11,6% given the current market price.

6.1.3 Relative Valuation

The multiples employed in the valuation of Devon stem from the main drivers for value creation in the E&P industry: production, reserves, and efficiency.

Price-per-flowing barrel (EV/MBOED) values companies according to their current production levels. Current production is an important metric as large CAPEX are necessary to increase production, affecting future cash flows and valuation. Next, EV-to-reserves are used. E&P firms extract limited natural resources, and acquiring new reserves is expensive. Therefore, a multiple yielding a valuation based on current reserves is included. Lastly, the EV/EBITDAX and FWD EV/EBITDAX are used, focusing on operational earnings and efficiency. Exploration and dry hole costs are excluded as they are more volatile and unpredictable, ensuring that the multiple reflects future operational efficiency and profitability more accurately. Only enterprise multiples are used as it allows comparing firms despite difference in debt levels. This is beneficial as it allowed focus to be on other parameters when assembling the peer group. Further, it is the most common multiples in the industry.

To ensure comparability, each firm has been analysed, and non-operational assets are omitted from the enterprise value. Additionally, the income statement is analysed and expected non-recurring costs are excluded.

The decisive factors in assembling the peer group have been geographic location, production, and reserves. Size is also considered measured in production and reserve levels. Devon is a pure-play E&P firm producing exclusively in the US. The company mainly extracts resources through unconventional methods (fracking) in shale areas, and all comparable firms hold most of their assets in similar areas.

Company Name:	Enterprise Value	Production - MBOED	Oil in % of Production	Proven Reserves - MMBOE	Oil in % of Reserves	R/P Ratio (Years)
Devon Energy	39 125	658	48,6%	1 817	43,6%	7,6
APA Corporation	18 191	396	48,0%	807	49,6%	5,6
EOG Resoruces	75 002	985	48,2%	4 498	39,0%	12,5
Marathon Oil Corp	21 493	405	46,9%	1 320	48,8%	8,9
Occidental Petrolium	85 932	446	52,5%	3 982	48,7%	24,5
Diamondback Energy	43 311	448	58,9%	2 178	52,5%	13,3
Average		**536**	**50,9%**	**2 557**	**47,7%**	**13,0**

Table 7 – Peer Group – Devon
Source: Refinitiv

Devon has a lower reserve-to-production (R/P) ratio in comparison to their peers. This characteristic is distinct in comparison to other companies in the industry and problematic for the relative valuation.

The following exhibit presents the median multiple from the peer group and the enterprise value and share price resulting from the multiple valuation.

Relative Valuation			
Multiple:	**Median**	**Enterprice Value**	**Share Price**
EV/MBOED	76,1	50 103	70,09
EV/MMBOE	19,9	36 136	47,99
EV/EBITDAX	9,5	47 134	65,40
FWD EV/EBITDAX	5,5	41 917	57,14
Average			**60,16**

Table 8 – Relative Valuation – Devon
Source: Refinitiv Eikon.

The current EV/EBITDAX and EV/MBOED yield high valuations for the company. Devon's high production in the current high commodity price environment makes the firm very profitable. Oil has traded between 70 and 115 USD per barrel since the outbreak of the Ukraine-Russia war, and all producing wells are presumably profitable. Viewed in isolation, Devon appears to be significantly undervalued. In contrast, the EV/MBOE multiple, which derives values based on reserves, yields a much lower valuation. The relative valuation results must be viewed in combination with Devon's low R/P ratio. If the firm is going to continue its high production, it will infer higher exploration costs and CAPEX than its peers, affecting its valuation. This is also reflected in the forward-looking EV/EBITDAX multiple.

The relative valuation results in a valuation ranging from 48 to 70 USD. The result should be analysed carefully, as there are large deviations from the minimum to maximum multiple evident in Appendix 11.3.2. In addition, Devo's unique R/P ratio lowers the quality of the peer group. All multiples included in the relative valuation are weighted equally to find a valuation of 60 USD.

6.1.4 Devon Valuation

Devon's standalone valuation is 41,35 billion USD, yielding a share price of 56,2 USD based on the NAV valuation, implying a current undervalution of 11,6%. Only the NAV model is used to arrive at the final valuation because the method is deemed to be of the highest quality. Still, the result is benchmarked against the relative valuation, which gives a similar price. The discrepancy is marginally outside the margin of error, and it is concluded that the firm is trading below it's intrinsic value. The FCFF valuation is not considered as it does not adequately account for the value derived from the flexibility.

6.2 ConocoPhillips

The standalone valuation of ConocoPhillips results from the relative valuation. The NAV valuation is presented in Appendix 11.3.3 but is not considered in the final valuation. Unlike Devon, ConocoPhillips has operations and assets globally, and there is high uncertainty associated with the valuation of undeveloped land outside the US because of a lack of data on precedent transactions. The FCFF method is not included as it is not used to derive the valuation of either firm. To ensure the standalone valuation is as accurate as possible, the quality of each valuation method has been the deciding factor for which valuation is used.

6.2.1 Relative Valuation

ConocoPhillips' peer group contains major independent E&P firms and IOCs that derive most of their income from upstream activities. Preference has been given to firms that create their revenues from the same geographics, but some pure-play US firms are also included as it is the most important region for Conoco. Valuing each geographic segment separately was considered, but the overall quality of the resulting peer groups was deemed lower as it is impossible to find companies with reserves and production levels similar to Conoco in each region. Moreover, the IOCs included in the peer group are currently gearing their operations toward shale oil in the US along with Conoco and the industry. Thus, the assembled peer group is assessed to be of high quality.

Company Name:	Enterprise Value	Production MBOED	Oil in % of Production	Proven Reserves (MMBOE)	Oil in % of Reserves	R/P Ratio
ConocoPhillips	**164 832**	**1 826**	**51,26%**	**6 758**	**51,26%**	**10,14**
Chevron	316 383	3 120	47,98%	11 069	47,98%	9,72
ExxonMobil	481 838	3 738	45,00%	16 928	45,00%	12,41
Occidental Petrolium	83 141	658	52,47%	1 817	52,47%	7,57
Hess Corp	56 820	446	56,98%	3 982	56,98%	24,46
EOG Resoruces	73 177	985	48,22%	4 498	48,22%	9,53
Diamondback Energy	42055	448	58,86%	2 178	52,53%	13,33
Average		**1 789**	**50,13%**	**7 659**	**50,13%**	**12,74**

Table 9 – Peer Group – ConocoPhillips

Median price per flowing barrel (EV/MBOED) is 93,9 showcasing the median price investors are paying per MBOED. Conoco current multiple is 90,3 indicating that the firm is trading at a discount with respect to production in comparison to their peers. Since the commodity production composition is highly comparable across the peer group this is a strong indicator of ConocoPhillips being undervalued. Valuing ConocoPhillips with the median multiple yields an enterprise value of 171 527 million USD, implying a share price of 131,2 USD.

The EV-to-reserves multiple (EV/MMBOE) values O&G firms based on the quantity of unextracted resources they hold. The median price per MMBOE is 24,67 USD and ConocoPhillips is currently trading at 24,4. Viewed in isolation, ConocoPhillips are trading at a slight discount given their proven reserves. Still, when considering that parts of ConocoPhillips reserves are in areas with lower historical production levels and higher risk (particularly in Africa) this could explain the small discount. The EV-to-reserves multiple yields an enterprise value of 166 731 million USD and a share price of 127,3 USD.

ConocoPhillips have a current EV/EBITDAX multiple of 6,40 which is lower than the peer group median. Similar results are found in the forward-looking multiple with ConocoPhillips trading 0,16 lower than the median multiple. Given ConocoPhillips market position, debt and expectations for growth, there is no reason for them to be priced on the lower end of their peer group, and they appear to be undervalued based on these multiples.

Resulting enterprise value and share price for each multiple is showcased in table 10.

Relative Valuation			
Multiple	**Median**	**Enterprise Value**	**Share Price**
EV / EBITDAX	6,85	176 221	135,1
NTM EV/EBITDAX	5,89	169 391	129,5
EV / MBOED	93,94	171 527	131,2
EV / MMBOE	24,67	166 731	127,3
Average		**170 967**	**130,8**

Table 10 – Relative Valuation – ConocoPhillips
Source: Refinitiv

The relative valuation is assessed to be of high quality. The peer group is assembled by firms expected to reflect the future of the company well. In addition, the main revenue drivers for E&P firms (production, efficiency, and reserves) are reflected in the chosen multiples. The relative valuation gives a share price range of 120 to 144 USD with an average price of 131 USD. The current share price is 124,34 USD implying an undervaluation of 5,2%.

7.0 Merger Analysis

The merger analysis incorporates the results from the market- and company analysis, deal rational and valuations of Devon and ConocoPhillips.

7.1 Precedent Transactions

In terms of size, very few transactions are comparable to the proposed acquisition. However, the recently announced mergers of Pioneer Natural Resources by ExxonMobil and Hess by Chevron are the inspiration behind the proposed acquisition and in many ways comparable. There are also large privately owned E&P firms recently acquired by public companies resembling the proposed takeover.

Devon Energy Precedent Transaction Analysis														
							Enterprise Value /					Premium Paid (days prior)		
Date Announced	Acquirer	Target	Payment Method	Equity Value	Offer - Share Price	Enterprise Value	MMBOE	MBOED	EBITDAX	$ per Net Acreage	Production (R/P)	1	7	30
May 22, 2023	Chevron	PDC Energy	Stock	6 300	72	7600	6,9	89,4	3,4	27 680	35,5	15,72%	14,54%	10,86%
October 5, 2023	ExxonMobil	Pioneer Natural Resources	Stock	59 500	253	64 500	26,1	90,2	6,7	75 690	9,47	17,50%	11,45%	8,58%
October 23, 2023	Chevron	Hess Corporation	Cash / Stock	53 000	171	60 000	43,8	152,3	11,1	74 906	9,53	4,90%	5,29%	9,53%
December 11, 2023	Occidental	CrownRock	Cash / Stock	10 800	N/A	12 000	N/A	70,6	N/A	94 000	N/A	N/A	N/A	N/A
February 12, 2024	DiamondBack Energy	Endeavor Energy Resources	Cash / Stock		N/A	26 000	N/A	72,2	N/A	75 581	N/A	N/A	N/A	N/A
Average							25,6	95,0	7,1	69 571,6	18,2	12,7%	10,4%	9,7%
Median							**26,1**	**89,4**	**6,7**	**75 581,4**	**9,5**	**15,7%**	**11,4%**	**9,5%**

Table 11 – Precedent Transactions in the E&P industry
Source: Refinitiv

Deriving a valuation from these transactions endures the same weaknesses as the relative valuation, which is further amplified as forward estimates cannot be incorporated. There are also concerns about using absolute valuations as all the transactions were largely paid for in stock, shortly after the rapid rise in the energy market after the Ukraine-Russia war. The valuation range given by the precedent transactions is 67 – 86 USD with price per flowing barrel yielding the highest- and EV/MMBOE the lowest valuation in line with Devon's R/P ratio.

Precedent Transaction Valuation			
Multiple	Median	Enterprise Value	Share Price
EV / EBITDAX	6,7	49 425	70,38
EV / MBOED	89,4	58 833	85,55
EV / MMBOE	26,1	47 429	67,16
Average		**51 895**	**74,36**

Table 12 – Precedent Valuation – Devon

Two of the median multiples used in the valuation stems from ExxonMobil acquisition of Pioneer, and the EV/MMBOE is nearly identical. While a larger sample size would be preferred the mentioned deal is the most comparable among the public transactions. Thus, this dissertation argues that multiples from this deal provide the most accurate estimation when comparing precedent transactions.

7.2 Control over PuD

Section 6.1.2.1 Undeveloped Reserves valued the PuD as a portfolio and showcased that immediately developing the PuD would increase the PV by 852 million USD. Aware of the weaknesses associated with valuing PuD as a portfolio of wells, this can only be used as a proxy for the value of PuD, and each well must be analysed separately before deciding on development. Still, given the current high commodity prices and forecasts, many PuD are expected to have a higher PV if developed immediately.

ConocoPhillips' superior financial position over Devon drives the value arising from control. Developing new reserves is capital-intensive, and Conoco's lower leverage, superior credit rating, and greater access to capital would make the merged company financially stronger than Devon is today. Hence, when considering Devon's assets in isolation, more positive NPV projects can be pursued if the two companies' merge. Accounting for both firms' assets, the merged firm would have more potential projects that can be pursued based on ranked NPV.

7.3 Cost Synergies

Cost synergies are among the main drivers behind the proposed acquisition and are important for the final recommendation. An FCFF valuation of ConocoPhillips operations strictly related to O&G production in the US (excluding Alaska) is performed to estimate synergies. Devon only operates in the US, and potential synergies are expected to arise from within this region. While the FCFF model is not optimal for valuing E&P firms, this dissertation argues that it is the best method for the valuation of synergies as it is necessary to value synergies on a going concern basis.

The results discussed are not the absolute valuations but the synergies resulting from merging ConocoPhillips' lower 48 segment with Devon's operations. The standalone valuation of Conoco's lower 48 operations follow the same steps as Devon using Conoco's WACC. Using the same cost of equity was considered as the operations are similar but refuted due to the differences in the R/P ratio between the firms. Financing, working capital and overhead costs are estimated as a fraction of total production. The standalone FCFF valuation of ConocoPhillips lower 48 operations amount to 73 428 million USD.

Free Cash Flow to the Firm - ConocoPhillips Lower 48 Segment				
Scenario:	**Early**	**Intermediate**	**Late**	**Probability Weighted**
Weighted Average Cost of Capital	11,27%	11,27%	11,27%	11,27%
Terminal Growth Rate	0,0%	0,0%	0,0%	0,0%
Probability	**20%**	**50%**	**30%**	
Present Value - Free Cash Flow	33 533	48 593	58 525	
Present Value - Terminal Value	34 740	25 420	17 365	
Present Value - Lower 48	**68 274**	**74 013**	**75 890**	**73 428**

Table 13 – Standalone valuation Lower 48 – ConocoPhillips

The combined value of Devon and Conoco's lower 48 operations without synergies yields a valuation range of 99 966 – 111 650 million USD, with an intrinsic value of 108 037 million USD.

Consolidated Valuation - Without Synergies				
Scenario:	**Early**	**Intermediate**	**Late**	**Probability Weighted**
Weighted Average Cost of Capital	11,31%	11,31%	11,31%	11,31%
Terminal Growth Rate	0,0%	0,0%	0,0%	0%
Probability	**20%**	**50%**	**30%**	
Present Value - Free Cash Flow	49 007	71 250	85 920	
Present Value - Terminal Value	50 959	37 847	25 730	
PV Consolidated Operations	**99 966**	**109 097**	**111 650**	**108 037**

Table 14 – Consolidated Valuation without Synergies

Only costs expected to be recurring is accounted for when estimating synergies. All expenses are calculated per barrel of oil or equivalent as they are extracted through the same process and the commodity composition is similar for the two firms.

Consolidated Production Composition and Cost-Drivers (Most Significant Expenses and Investments)				
Production Composition	**ConocoPhillips - Lower 48**	**Devon Energy**	**Consolidated**	**Cost Reduction**
Crude Oil	53,3%	48,7%	51,5%	N/A
Natural Gas	22,7%	24,6%	23,5%	N/A
Natural Gas Liquids	24,0%	26,7%	25,0%	N/A
Total Production (MBOE)	**1068**	**658**	**1726**	**N/A**
Expenses per MBOE (USD)				
Production Expenses (Excluding Taxes)	10,76	10,31	10,59	0,20
Taxes other than Income Taxes	4,23	3,12	3,80	N/A
Exploration Expense	0,47	0,66	0,54	0,05
General and Administrative Expense	0,76	1,88	1,19	0,35
Depreciation, depletion and amortization	15,64	12,69	14,52	N/A
Sum				**0,60**
CAPEX & Working Capital				
Capital Expenditure (CAPEX)	16,23	16,01	16,14	0,10
Working Capital per Barrel	2,00	2,43	2,16	0,15
Sum				**0,25**

Table 15 – Most significant recurring costs, Working Capital, and CAPEX

The estimated cost savings are derived from market research and assessments of comparable transactions. Taxes related to production and DD&A will be unaffected as the firm will not have any influence on these line items.

Overhead costs are expected to derive the largest synergies. Devon's operations are comparable to Conoco's in terms of nature and demographics, and the company is expected to be able to take on Devon's operations without significantly raising overhead expenses. Production costs are also estimated to derive synergies. Both companies have significant operations in the Permian-, Williston and Eagle Ford and savings from reduced lease operating expenses (LOE), transportation costs and more efficient use of resources is expected. Lastly, exploration expenses are reduced slightly. The firm is still dependent on replenishing its reserves in the future, but optimizing exploration across the entire portfolio of undeveloped land increases the success rate of explorations, lowering its overall expenses.

Working capital reduction is also evident in a merger. ConocoPhillips financial strength has enabled them to have a negative cash conversion cycle (-12,5) in contrast to both the industry average (3,8) and Devon (10,9). The lower CCC arises from longer credit time among creditors due to their financial strength and lower inventory days as they are active in the marketing segment. The merged company is anticipated to leverage Conoco's strengths, realising 101 million USD of working capital in 2024. Furthermore, the combined firm will capitalize on Conoco's surplus cash and address Devon's cash shortfall within the first year. Only a small reduction in CAPEX reasoned in portfolio optimization is considered, and the combined firm is expected to continue increasing production intact with the forecasted level.

Consolidated Valuation - Including Synergies				
Scenario:	**Early**	**Intermediate**	**Late**	**Probability Weighted**
Weighted Average Cost of Capital	11,31%	11,31%	11,31%	11,31%
Terminal Growth Rate	0,0%	0,0%	0,0%	0%
Probability	**20%**	**50%**	**30%**	
Present Value - Free Cash Flow	51 093	74 149	88 806	
Present Value - Terminal Value	53 027	39 139	27 144	
PV Consolidated Operations	**104 120**	**113 288**	**115 950**	**112 253**

Table 16 – Consolidated Valuation Including Synergies

The PV of synergies amounts to 4216 million USD in the probability weighted scenario. First year increase in free cash flow resulting from consolidation is calculated to be 508 million USD. Conducting a sensitivity analysis on cost synergies highlights the rationale for the industry's consolidation trend. Expenses relate to production volume and are independent of variance in the oil price and value derived from economics of scale can lead to lower variance in firm valuation.

Enterprise Value Subject to Change in Oil Price and Terminal Growth							
	Deviation from Forecasted Oil Price						
Terminal Growth Rate	-$15	-$10	-$5	$0	$5	$10	$15
-3%	3 870	3 870	3 870	3 870	3 870	3 870	3 870
-2%	3 968	3 968	3 968	3 968	3 968	3 968	3 968
-1%	4 082	4 082	4 082	4 082	4 082	4 082	4 082
0%	4 216	4 216	4 216	**4 216**	4 216	4 216	4 216
1%	4 377	4 377	4 377	4 377	4 377	4 377	4 377
2%	4 571	4 571	4 571	4 571	4 571	4 571	4 571
3%	4 813	4 813	4 813	4 813	4 813	4 813	4 813

Table 17 – Sensitivity Matrix Synergies

7.4 Offering Price

The value arising from control over PuD amounts to 852 million, and cost synergies total 4,22 billion USD, aggregating the value created from the merger to 5,07 billion USD. If the transaction is pursued, Conoco is expected to incur transaction costs of 854 million USD resulting in net synergies of 4,21 billion USD. To arrive at a bidding range for Devon, the net value created from the merger is attributed to Devon.

Valuation - Synergies & Controll			
Devon Energy	**Enterprise Value**	**Share Price**	**Deviation from Market Price**
Market Value	39 125	50,4	
Intrinsic Value	41 350	56,2	11,6%
Intrinsic Value + Control over PuD	41 348	56,2	11,5%
Intrinsic Value + Cost Synergies	44 713	61,7	22,5%
Total Value Including Synergies and Control	**45 565**	**63,1**	**25,2%**

Table 18 – Valuation Including Merger Effects

The bidding range is set between the current market price of 50,4 and a maximum of 63,1 USD per share. Considering recent transactions and the value of net synergies, an offering price of 58 USD, 15% above Devon's market price, is recommended. This yields a market capitalization (including NCI) of 37,2 billion and an EV of 42,4 billion USD. If the offer is accepted, ConocoPhillips receive 74% of the value from net synergies amounting to 3,1 billion USD. The reason for ConocoPhillips retaining most of the value from synergies is that Devon is currently trading below their intrinsic valuation, and a low premium is offered (in line with comparable transactions). Still, Devon's shareholder will receive a premium of 7,6 USD per share, which is also 3% higher than the calculated intrinsic value. Devon is majority owned by institutional investors, and since it is on par with precedent transactions, the offer is expected to be accepted.

7.5 Financing Structure

Most of the comparable transaction have used stocks as payment for acquisition, but with ConocoPhillips currently trading below their valuation, this option is not viable. The offer price already includes a premium on the current market price and given Conoco's undervaluation issuing stock to pay for the acquisition would result in the firm overpaying twice for Devon. There are also concerns about using ConocoPhillips's free cash flow to pay off debt, as investors demand that O&G firms return money to shareholders instead of pursuing growth through acquisitions or exploration projects. Consequently, reducing dividends or share buybacks could hurt their valuation. Therefore, the proposed transaction is structured to exploit ConocoPhillips' financial strength to raise debt financing, managed by the free cash flow stemming from Devon's already developed reserves.

With an offer price of 58 USD per share, 37,15 billion USD is required to acquire all outstanding shares. Additionally, transaction costs related to the merger are estimated to be 500 million based on average expenses related to mergers in the E&P industry (Salsberg & Kaske, 2023), and issuance cost of debt is estimated to be 354 million USD (1% of newly issued debt). Thus, the total acquisition cost amounts to 38 billion USD.

Financing is obtained through 2,6 billion in excess cash and issuing 35,4 billion USD in debt. Devon's net debt of 5,2 billion is assumed in the transaction. Consequently, Conoco's debt-to-equity ratio will increase from 8,5% to 34,3%, which is on the higher end of their peer group, and the credit rating is expected to be downgraded from A to BB based on their peer's current rating. Credit spread on new debt is expected to rise from 1,07% to 2,21%, given Damodaran's synthetic spread. Newly issued debt is scheduled to be paid down over the next six years until ConocoPhillips reaches its long-term debt-to-equity target of 18% using 80% of the free cash flow from Devon's already developed reserves.

Transaction Structure									
Year	**Before Acquisition**	**After Acquisition**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Forecasted Free Cash Flow to Firm (Acquired Developed Reserves)			**6 212**	**5 473**	**4 609**	**4 732**	**3 952**	**3 925**	**4 034**
ConocoPhillips:									
Debt Payment			5 044	4 444	3 743	3 842	3 209	3 187	3 276
Net Debt	12 331	49 463	44 419	39 975	36 232	32 390	29 181	25 994	25 994
Debt-to-Equity Ratio	8,5%	34,3%	30,8%	27,7%	25,1%	22,4%	20,2%	18,0%	18,0%
Interest on Debt Used to Finance Acquisition			2 602	2 268	1 678	1 457	1 231	966	787
Interest on Debt Pre-Acquisition			677	677	677	677	677	677	677
Total Interest Expense			**3 279**	**2 945**	**2 355**	**2 134**	**1 908**	**1 643**	**1 463**
Expected Credit Rating	A	BB	BB	BBB	BBB	BBB	A-	A-	A-
Credit Spread	1,07%	2,2%	2,2%	1,5%	1,5%	1,5%	1,2%	1,2%	1,2%
Cost of Debt	**5,49%**	**6,63%**	**6,63%**	**5,89%**	**5,89%**	**5,89%**	**5,63%**	**5,63%**	**5,6%**

Table 19 – ConocoPhillips debt-to-equity ratio post-acquisition

The combined firms' interest coverage ratio post-acquisition is calculated to be 6,71, and the firm should not have an issue managing the debt. Still, with the debt level on the higher end of the peer group, increasing the offering price is not recommended, even though the value of synergies leave room for a higher bid for Devon.

7.6 Risk Analysis

The risk and sensitivity analysis outlines how the valuation is affected by changes in key input parameters. Graphical illustrations are in Appendix 11.4.

The Monte Carlo Simulation subject the forecasted oil prices to the historical standard deviation. Around 68% of the simulations yielded an EV higher than the implied EV in the transaction.

Monte Carlo Analysis	
Average Enterprise Value	45 408
Median Enterprise Value	45 432
Standard Deviation	6 587
Min	14 826
Max	73 730
Simulated EV above Implied EV	67,7%

Table 20 – Monte Carlo Simulation

Subjecting the valuation to changes in oil price and discount rate showcase the high sensitivity to these parameters. If oil prices drop above 5,7 USD, the transaction will no longer be profitable for ConocoPhillips shareholder. The share price is not as sensitive to the discount rate because of Devon's low R/P ratio.

Enterprise Value Subject to Change in Oil Price and Terminal Growth								
		Deviation from Forecasted Oil Price						
		-$15	-$10	-$5	$0	$5	$10	$15
Discount Rate	14,3%	47,9	51,2	54,6	57,9	61,2	64,6	67,9
	13,3%	49,2	52,6	56,1	59,5	63,0	66,4	69,9
	12,3%	50,6	54,2	57,7	61,3	64,8	68,4	71,9
	11,3%	52,1	55,8	59,4	**63,1**	66,7	70,4	74,0
	10,3%	53,7	57,5	61,2	65,0	68,8	72,5	76,3
	9,3%	55,4	59,3	63,2	67,0	70,9	74,8	78,7
	8,3%	57,1	61,2	65,2	69,2	73,2	77,2	81,2

Table 21 – Sensitivity Matrix Oil Price and Discount Rate

8.0 Critique of the Assignment

This section critiques the assignment by examining the assumptions and methodology used in the thesis. It aims to highlight the weaknesses that must be considered during a due diligence process or in the event of significant changes in the market.

- Long-term forecasted commodity prices are derived from normalising historical prices over the last 40 years. While this is considered more accurate than trying to predict the long-term macroeconomic environment, it is not a perfect approach. Historically, the oil price has deviated significantly from the long-term average over extended periods. As of today, the normalised price is around the current market and forecasted price. Regardless, if there are significant changes in the market, this must be considered.

- Proven undeveloped Reserves (PuD) are valued as a portfolio of wells. The approach is taken because of the availability of information, but in a due diligence process, each reserve should be valued separately to estimate the intrinsic value more accurately. Additionally, Following SEC rules, Devon only capitalises probable reserves (P1) on their balance sheet. Proven reserves are defined by the SEC as the quantity of O&G that is probable to be recoverable given current market conditions. Hence, the quantity of PuD will be affected by changes in the commodity price. The value of uncapitalised reserves is accounted for in the valuation of undeveloped land. Still, the variance used in the valuation of PuD is understated as it only depends on prices, which undervalues the optionality attached to the reserves.

- All sensitivity analyses and the Monte Carlo simulation used to assess the impact of changes in critical input variables are static instruments that do not consider that companies can adjust according to market conditions. Consequently, the error in the sensitivity analysis is expected to increase as it moves away from the estimated value. Therefore, the risk- and sensitivity analysis should not be the basis for any decisions if the deviation from the calculated values is significant.

9.0 Conclusion

The aim of this dissertation was to perform an initial assessment of an acquisition of Devon Energy by ConocoPhillips, and at which price the transaction created value for the shareholders of ConocoPhillips.

Based on an extensive financial and strategic analysis of the respective firms, an offer price of 58 USD was proposed. The offer price represents a premium of 15 percentage over the current share price, which is comparable to precedent transactions in the industry. A deal structure exploiting the financial strength of ConocoPhillips allowing the firm to issue low-cost debt to finance the acquisition is presented. Because of Conoco's low leverage pre-transaction, there is not expected any significant distress costs if the deal is pursued. 4,21 billion USD in net synergies are found in the analysis, and since Devon is currently trading below their intrinsic value, most of the value from net synergies will be attributable to ConocoPhillips shareholders if the deal is completed.

From a strategic perspective, the deal is favourable. Devon's unique R/P ratio allows ConocoPhillips to exploit the expected high commodity prices in the short term while mitigating long-term risk. Moreover, lowering costs by capturing cost synergies from economics of scale is crucial as the industry matures.

Therefore, the result of the initial assessment of an acquisition of Devon by ConocoPhillips is to pursue the transaction. It is imperative to emphasise that values stemming from synergies and commodity prices must be continuously analysed throughout the due diligence process as more information become available.

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11.0 Appendix

11.1 Literature Review

11.1.1 Empirical Evidence of Value Created through M&A

There is a common belief among many within finance that M&A usually destroys value for shareholders of the acquiring firm. Bruner (2005) disputes this belief in a thorough review of 130 studies on M&A. He highlights a measurement problem where transactions are judged based on share prices without considering the countless exogenous factors that affect stock prices. Bruner's view is supported by (Koller et al., 2020) that states when measured in combined cash flows M&A create value both for investors and the economy.

There is however evidence for that most value goes to the owners of the target firm. Considering that acquisitions often are executed with a substantial premium this is not surprising (Koller et al., 2020). However, (Bruner, 2005), finds that around 77 percent of transactions either conserve or create value for the acquirer. Albeit to a smaller degree.

There is also evidence for deals paid for in cash creates more value in comparison to stock deals. However, following the signalling theory often used with seasoned equity offers (SEO), a possible explanation for this is that the market view stock transactions as a signal of managers believing their stock is overvalued (Bruner, 2005).

The main takeaway from (Bruner, 2005) review of M&A literature is that M&A transactions are not homogenous, and cannot be treated as such. The point is further reinstated by Koller et al (2020), which stresses the importance of through analysis of the potential synergies both before and under the due diligence. By evaluating transactions by their fundamentals M&A can create value for all involved parties.

11.1.2 Hubris and Managerial Reasons for M&A

In some instances, there is not an economic rational leading company to pursue M&A transactions, but rather managers themselves. Reasons for this varies from self-interest, overconfidence, and just poorly executed due diligence. For example, managerial salary typically correlates with the size of the firm they are running, and there is also a lot of prestige in running larger corporation. As a result, managers have an incentive pursue acquisitions even in cases where they do not gain value for their shareholders (Berk & DeMarzo, 2024). Even in cases where managers are trying to act in the best interest of shareholders, they could potentially be destroying value when pursuing acquisitions. Richard Roll presented the "hubris hypothesis" in his 1986 paper which maintains that overconfident managers overestimate their ability to manage, which leads them to pursue value-destroying acquisitions (Roll, 1986). Another issue is not emphasizing findings in the due diligence process enough, or only using due diligence to verify financial statement instead of a thorough analysis of the deal. A Bain & Company survey of 250 executives found that only 30 percent of them were satisfied with their due diligence, and that around a third of the executives had not walked away from a deal even when in doubt (Cullinan et al., 2004).

11.1.3 Merger Waves

M&A activity is characterized by merger waves. Merger waves are periods with high M&A activity followed by periods with very low activity (Berk & DeMarzo, 2024). While sometimes being spread throughout the entire economy, they usually occur within specific industries. There have been two dominant theories on why they occur; either because of market-timing or as a result of industry- or regulatory shocks (Harford, 2005). Harford (2005) finds little evidence on these waves being caused by timing, but rather from regulatory or industry- specific shocks. However, also this is subject to firms having enough capital at the time of the shocks. Interestingly, (Bruner, 2005) founds that M&A are less likely to be profitable if it occurs under hot M&A markets, although the article mentions mispricing under such times as a possible explanation.

11.1.4 Value versus Price

The intrinsic value of any asset is equal to the present values of the cash-flows it will generate. While the definition is simple, estimating the fundamentals that are driving value; expected cash-flows, growth and risk is the complete opposite. Prices, on the other hand, are driven by supply and demand, and while the fundamentals undoubtably affect both they are also affected by factors such as momentum and general mood in the market (Damodaran, 2018).

If markets make mistake, but these mistakes are random and not related to any known variable, valuation based on both fundamentals and prices will on average yield the same results. In short, markets are fully efficient. If the opposite is true, then the two methods can yield vastly different results (Damodaran, 2018). The current market consensus about capital markets being semi-strong will imply that the different methods should yield similar results.

11.1.5 Terminal Value

The terminal value (TV) is the value of the companies expected cash flows beyond the forecasted period. The most common approach is to use a multiple in the terminal year. However this is inconsistent with the basis of a fundamental valuation, as it focuses on prices instead of value (Damodaran, 2018). Therefore, in this thesis a perpetuity formula will be used to calculate the terminal value.

(Koller et al., 2020) presents a terminal value that is consistent with discounted cash flow models.

$$Terminal\ Value\ (TV) = \frac{NOPAT_{t+1} * (1 - \frac{g}{RONIC})}{WACC - g} \quad (5)$$

The formula calculates the TV as a product of NOPAT, growth, WACC and expected return on newly invested capital (RONIC). While technically yielding the same result as the standard Gordon growth model it does not ignore the independent relationship between free cash flow and growth. In short, it takes the required reinvestment rate into consideration. For cyclical companies NOPAT should be calculated based on normalised earnings, margins and return on investment capital (ROIC). The growth rate should be equal to the long-term expected growth in consumption for the industry (Koller et al., 2020).

11.2 Market Analysis

11.2.1 Risk Factors

Geopolitical risk in the O&G market is very high due to the Russia-Ukraine war and the conflict in the middle east. Russia is a major O&G producer and the sanctions against them empowered by the UN and US have had a major impact on the O&G market. Russia has shifted their O&G exports towards the Asian market and Europe are now exporting much less Russian gas ("Russia's Dependence on Exports to Asia Rises as Business with Europe Falls," 2024). While the market has adapted to the new reality, any escalation or de-escalation in the conflict will impact commodity prices. Moreover, the current conflict between Hamas and Israel is also a source of geopolitical risk. Neither of the parties are major exporters of oil or gas, but there is concern about the US and Iran getting directly involved in the conflict. Involvement of either country will have major impact on the O&G market, and likely cause prices to surge. The increased geopolitical risk have led countries to prioritize energy security, either domestically or through allies (*The Geopolitics of Oil and Gas*, 2023). This have eased some of the environmental pressure and made it easier for O&G firms to operate.

O&G firms are also exposed to regulatory risk. To limit global warming to 2 degrees Celsius as agreed in the Paris agreement, emissions must be reduced dramatically. Around 6 percent of greenhouse emission is a result of O&G production (*Global GHG Emissions Shares by Subsector*, 2023) and the industry must reduce its emission if the goals in the Paris agreement are going to be reached. The discussion of implementing or increasing the usage of carbon taxes are therefore a major risk for the O&G sector as it will have direct impact on their earnings and valuation. Moreover, there is evidence for investors demanding a premium for holding assets with high carbon emission, especially if the emission stems from scope 1 emission (Bolton & Kacperczyk, 2021). As a result, carbon risk not only affect the O&G industry's cash-flows but also increase the cost of capital. As seen in figure 12, the carbon market has had significant growth in the last years- The growth is expected to continue intact with carbon pricing. As of today, 87 percent of this market are within Europa (*Global Carbon Market Value Share by Market 2022*, 2023).

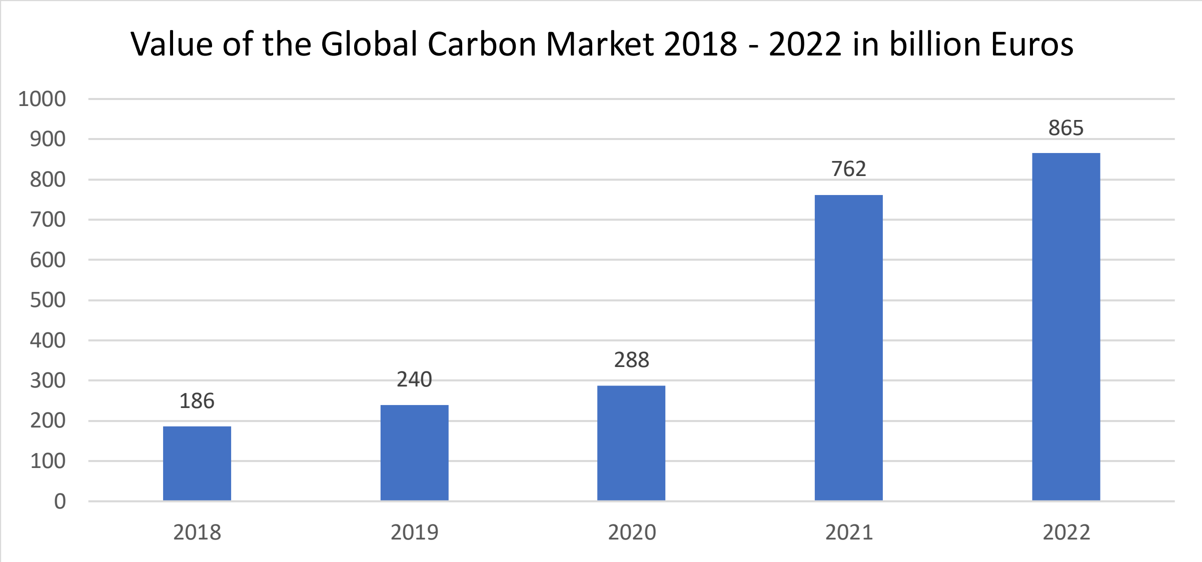

Figure 12 – Global Carbon Market 2018 – 2022
Source: (Global Carbon Market Size 2022, *2024.)*

The current discussion on renewable energy and energy security forms contradicting discussion on the future for O&G in the short- to medium term. This could result in high volatility as there is both a great upside and downside risk in the industry.

Another regulatory risk the O&G industry is exposed to is the implementation of windfall taxes. This type of taxation is highly relevant considering the Russia-Ukraine war, which caused profits for the O&G industry to surge. The UN chief Antonio Guterres is one of the many advocates for this taxation and have urged all countries with developed economies to implement it (McGrath, 2022). The majority of countries in the European Union and the UK implemented windfall tax in 2022 ranging from 25 to 75 percent, while firms in the US avoided this taxation (Enache, 2023). The windfall taxes underscore the difference between European and US regulations. This is likely one of the drivers behind US firms investing more heavily in O&G in comparison to their European counterparts that are shifting more of their investments towards renewable sources. There is also evidence of US firms outperforming European firms in recent years which could stem from investors deeming the political risk levels in Europa to be higher than in the US.

11.2.2 Differences Between Oil and Gas

Oil and gas are very interchangeable and thus exposed to many of the same risks and drivers. However, there are differences between the commodities. This distinguishment is especially important for natural gas as it is non-liquid and depends on pipeline systems for transportation (Justin Parker, 2020). Natural gas can be transformed into liquified natural gas (LNG). Yet, this process is expensive, and even when converted to LNG, special tankers are required to transport LNG, making transportation more expensive than transportation for crude oil with tankers. Because of higher transportation costs and logistical challenges, natural gas is more exposed to local supply and demand (Justin Parker, 2020).

Various studies have found a cointegrated relationship between oil and natural gas prices, indicating a long-term equilibrium. However, the relationship is unstable, possibly due to the interchangeability between the commodities (Hartley & Medlock, 2014). Still, because of the cointegrated relationship, this thesis mainly focuses on the drivers behind oil prices, arguing that these drivers also affect natural gas prices. In addition, the oil price is the most important commodity for both the acquiring and target firm, and the oil price is much more determinant for the valuation and final recommendation.

11.2.3 Historical Analysis of the Oil Price 1976-2024

Figure 13 presents the brent crude oil price from 1976 until 2024.

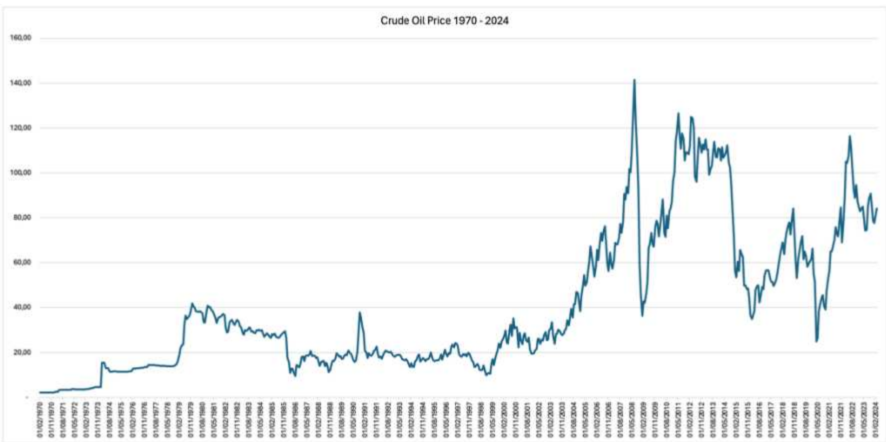

Figure 13 – Brent Crude Spot Price
Source: Refinitiv

The oil prices have been highly volatile throughout history. Major events like the Iran-Iraq war in the early 80s (Tahmassebi, 1986), OPEC decision to abandon the fixed price agreement in 1986 and the Gulf war in the early 90s is reflected in the oil price volatility (*History of Crude Oil*, n.d.).

From the start of the millennium until 2008 the oil price increased rapidly along the world economy before collapsing during the great financial crisis in 2008 (*History of Crude Oil*, n.d.). However, the extended period with high oil prices led to technological breakthrough in the oil industry. This is especially the case in the US where the shale oil revolution started to increase the production volumes in the US greatly in the beginning of the 2010s (Majumdar & Mittal, 2018). Shale oil in the US is also significant in the 2014 crash, which was a result from OPEC+ flooding the market to make shale oil unprofitable ("US Frackers Return to Haunt OPEC's Pricing Strategy," 2023). Oil started to stabilize after that period before the covid-19 pandemic caused the prices to tank once again. In the recent year, oil prices have stabilized around 80 USD per barrel. The more stable price is a result of OPEC+ holding back production, and many analysts are saying that OPEC+ do not want to see prices dip below 80 USD.

11.2.4 Benchmarks & Quality

The three most common Benchmarks are Brent Crude, West Texas Intermediate (WTI), and Dubai Crude. Brent Crude is the largest benchmark, accounting for around two-thirds of global contracts, covering oil produced in the North Sea. Oil from the North Sea is high-quality and easy to transport since it is extracted from the sea. WTI is the index used for oil produced in the US (primarily in Texas). Oil produced in the US is mainly transported by pipelines to refineries in the Midwest. The dependence on pipelines makes it harder to access global markets, and therefore oil following the WTI index typically trades at a discount compared with the Brent Crude despite being of even higher quality (Chen, 2024). Dubai Crude is the primary reference for oil in the Persian Gulf, which is characterised by lower quality compared to Brent Crude and WTI.

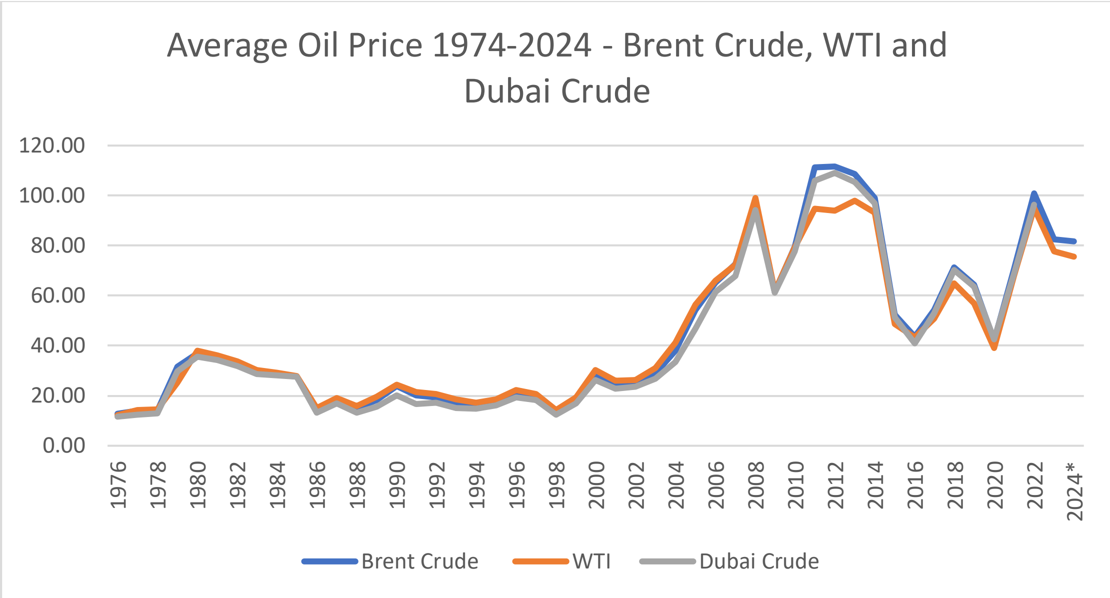

Figure 14 – WTI, Brent Crude and Dubai Crude Oil Price
Source: Refinitive

The two most important quality measurements are density and sulfur content (*Crude Oils Have Different Quality Characteristics - U.S. Energy Information Administration (EIA)*, n.d.). Density is measured in API gravity (the measurement unit created by the American Petroleum Institute) and typically ranges from 22 to 38 API. Oil with a high API measurement is light, while low API crude oil is heavy. Sulfur content is measured to determine if the oil is sweet or sour. Oil containing more than 0,5 percent sulfur is labelled sour, while oil with lower sulfur content is called sweet (*Petroleum 101*, 2021). Light and sweet oil are desired as they require less refinement to produce high-value products like gasoline and diesel.

The realised price received when trading oil is given by the relevant benchmark depending on location plus a spread based on the quality.

11.2.5 Energy Consumption

Since the Industrial Revolution, the world's energy consumption has increased, and since the new millennium, it has grown by 2 percent annually. The growth is expected to continue, albeit at a slower pace.

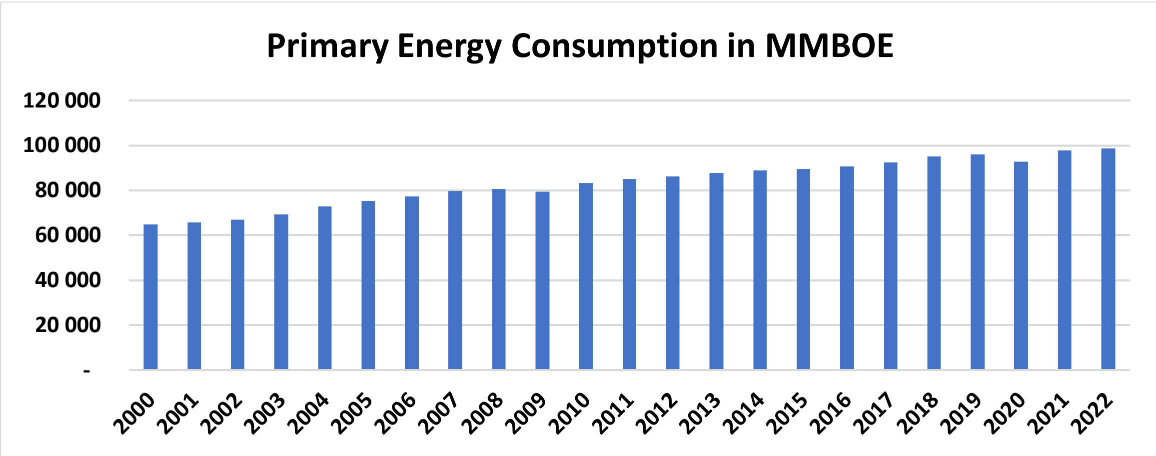

Figure 15 – Primary Energy Consumption from 2000 to 2022.
*Source: (*Global Primary Energy Consumption, 2024*)*

Energy efficiency will be essential to reducing energy consumption in the future. This is the main driver behind the reduction in primary energy consumption seen in many wealthy countries focusing on reducing emissions. However, developing countries are expected to increase their consumption five times more than developed countries reduce their consumption due to efficiency gains (*Global Energy Fundamentals*, 2024). The continuing rise in consumption results from population growth, regional manufacturing, and higher living standards, leading consumption to outpace the increasing efficiency. According to the EIA, a rise in energy consumption will outpace increases in efficiency until 2050 (Sanicola et al., 2023). For the O&G industry, total consumption will be the determinant factor for peak oil demand.

11.2.6 Energy Composition

The world is attempting to move away from fossil fuels, and renewable energy is gaining market share in total energy consumption. Figure 16 illustrates the energy composition in the mid-1960s, 2000, and 2022.

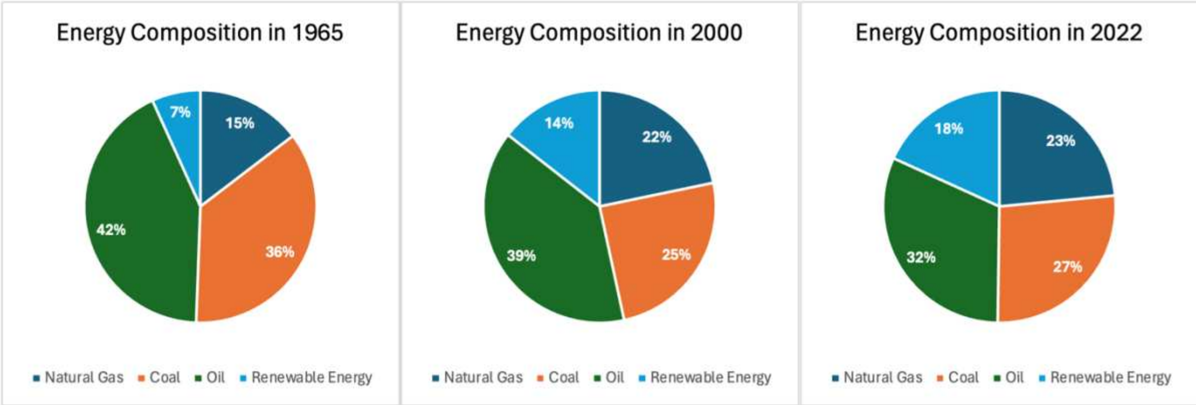

Figure 16 – Energy Consumption in 1965, 2000, and 2022 in Percentage.
Source: (Ritchie et al., 2024)

Fossil fuels still account for 78 percent of the world's energy consumption, and O&G totalled 55 percent in 2022. The illustration shows that natural gas has gained market share while oil has declined since the 1960s. However, oil's share of total energy consumption has been stable since 2000. Going forward more and more energy is expected to arise from renewable sources.

11.3 Firm Valuation

11.3.1 Supporting Documents for the Forecasted Free Cash Flow to the Firm Valuation

Figure 17 illustrates the forecasted global production quantity of crude oil:

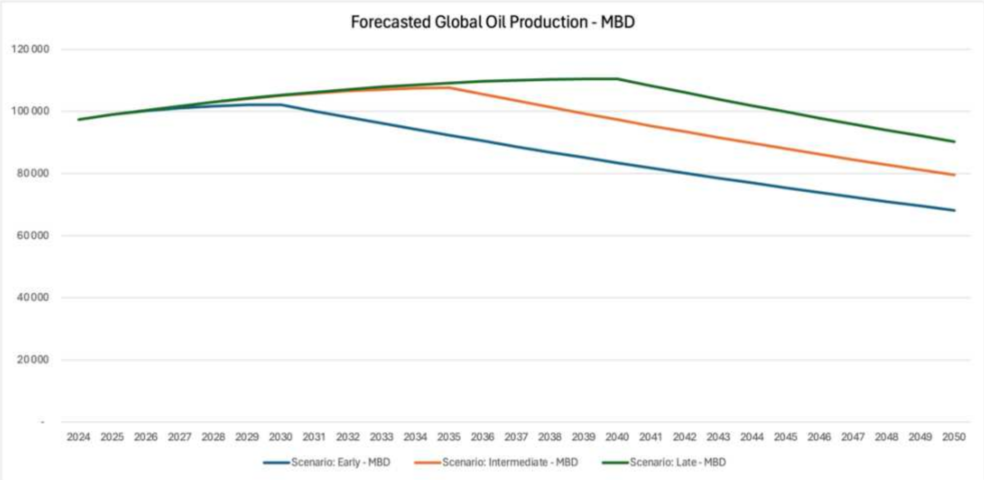

Figure 17 – Forecasted Global Oil Production in each Scenario

Calculations of industry beta and target debt-to-equity ratio:

Beta Coefficient						
Company Name	**Ticker**	**Levered Beta**	**Market Capitalization**	**Debt**	**D/E**	**Unlevered Beta**
Diamondback Energy	FANG	1,89	36 372 438 513	6 641 000 000	18,3%	1,60
EOG Resoruces	EOG	1,38	76 480 679 472	3 799 000 000	5,0%	1,31
Occidental Petrolium	OXY	1,66	59 233 572 724	19 738 000 000	33,3%	1,25
APA Corporation	APA	3,29	12 053 869 977	5 188 000 000	43,0%	2,30
Marathon Oil Corp	MRO	2,22	16 201 377 514	5 447 000 000	33,6%	1,66
Average		**2,09**			**26,6%**	**1,62**
Median		**1,89**			**33,3%**	**1,60**

Table 22 – Beta Calculation

Unlevered and levered cost of equity:

Cost of Equity	
Risk-free Rate	4,42%
Market Risk Premium	4,30%
Median Industry Beta (unlevered)	1,60
Unlevered - Cost of Equity	11,29%
Average D/E	26,64%
Levered Beta - Devon	2,02
Levered - Cost of Equity	13,12%

Table 23 – Cost of Equity Calculation

Market risk premium based on current prices as outlined in the litterature review is collected from Damodaran and the risk free rate is from a 10-year zero coupon gouvernment bond.

Reformulated Income- and Cash Flow Statement and Forecast for the Early Scenario															
	Historical Period							Forecasted Period							
Year	2018	2019	2020	2021	2022	2023	CAGR	2024	2025	2026	2027	2028	2029	2030	CAGR
Production:															
Crude Oil - MBD	130	150	155	290	299	320	**19,7%**	326	331	335	338	340	342	342	**0,8%**
Natural Gas - MMCFD	992	1 061	1 071	1 688	1 870	2 026	**15,4%**	2 173	2 259	2 325	2 369	2 415	2 461	2 507	**2,4%**
Total Production - MBOED	**295**	**327**	**334**	**571**	**611**	**658**	**17,4%**	**688**	**708**	**723**	**733**	**743**	**752**	**760**	**1,7%**
Revenues:															
Crude Oil	2 941	2 988	2 034	6 996	10 281	8 879	**24,7%**	9 776	9 703	9 042	9 309	9 556	9 780	9 980	**0,3%**
Natural Gas	1 144	821	661	2 535	3 801	1 912	**10,8%**	3 886	4 188	4 074	4 094	4 256	4 424	4 598	**2,8%**
Total Revenues	**4 085**	**3 809**	**2 695**	**9 531**	**14 082**	**10 791**	**21,4%**	**13 662**	**13 891**	**13 116**	**13 404**	**13 812**	**14 204**	**14 578**	**1,1%**
Production Expenses	934	925	933	1 465	1 843	2 215		2 643	2 771	2 887	2 988	3 088	3 187	3 285	
General and Administrative Expenses	574	475	338	391	395	408		473	487	497	504	511	517	523	
Other, Net	- 7	4	- 34	- 43	- 95	38		43	45	47	48	50	51	53	
Taxes Other Than Income Taxes	219	272	190	666	954	713		783	805	822	834	845	855	864	
EBITDAX	**2 365**	**2 133**	**1 268**	**7 052**	**10 985**	**7 417**	**25,7%**	**9 720**	**9 783**	**8 863**	**9 029**	**9 318**	**9 593**	**9 853**	**0,2%**
Exploration Expenses	128	58	167	14	29	20		170	178	186	192	199	205	211	
EBITDA	**2 237**	**2 075**	**1 101**	**7 038**	**10 956**	**7 397**	**27,0%**	**9 550**	**9 605**	**8 677**	**8 837**	**9 120**	**9 388**	**9 642**	**0,2%**
Depreciation, Depletion and Amortization	1228	1497	1300	2158	2223	2554		2 807	2 885	2 947	2 990	3 029	3 065	3 098	
EBIT	**1 009**	**578**	**- 199**	**4 880**	**8 733**	**4 843**	**36,8%**	**6 743**	**6 720**	**5 730**	**5 847**	**6 090**	**6 323**	**6 544**	**-0,5%**
Net Financing Cost	580	250	270	329	309	308		353	353	353	353	353	353	353	
Income Tax	212	121	- 42	1 025	1 834	1 017		1 342	1 337	1 129	1 154	1 205	1 254	1 300	
Deffered	- 18	151	505	960	96	176		-	-	-	-	-	-	-	
Cash Tax	230	- 30	- 547	65	1 738	841		1 342	1 337	1 129	1 154	1 205	1 254	1 300	
NOPAT	**779**	**608**	**348**	**4 815**	**6 995**	**4 002**	**38,7%**	**5 048**	**5 030**	**4 248**	**4 340**	**4 532**	**4 716**	**4 891**	**-0,5%**
Depreciation, Depletion and Amortization	1228	1497	1300	2158	2223	2554		2 807	2 885	2 947	2 990	3 029	3 065	3 098	
Capital Expenditure (CAPEX)	- 2 171	- 1 941	- 1 161	- 2 007	- 5 125	- 3 947	**12,7%**	- 4 021	- 4 134	- 4 222	- 4 284	- 4 341	- 4 392	- 4 438	**1,7%**
Change In Working Capital	392	371	-618	567	293	578		- 414	- 30	- 27	- 24	- 24	- 23	- 23	
FCFF	**228**	**535**	**- 131**	**5 533**	**4 386**	**3 187**	**69,5%**	**3 420**	**3 751**	**2 945**	**3 023**	**3 198**	**3 366**	**3 527**	**0,5%**

Table 24 – Forecasted Free Cash Flow to the Firm

11.3.2 Relative Valuation – Devon

Devon Valuation - Relative Valuation					Devon Valuation - Enterprise Value				Devon Valuation - Share Price			
	Enterprise Value /											
	MMBOE	MBOED	EBITDAX	FWD EBITDAX	MMBOE	MBOED	EBITDAX	FWD EBITDAX	MMBOE	MBOED	EBITDAX	FWD EBITDAX
Median	19,9	76,1	9,5	5,5	36 136	50 103	47 134	41 917	48,0	70,1	65,4	57,1
Average	19,4	92,9	9,3	5,0	35 238	61 137	45 995	37 764	46,6	87,6	63,6	50,6
Min	16,3	45,9	5,5	2,9	29 585	30 226	27 400	21 830	37,6	38,6	34,2	25,4
Max	22,5	192,7	13,9	6,2	40 958	126 779	69 104	46 920	55,6	191,4	100,2	65,1

Table 25 – Relative Valuation: min, max, average and median – Devon

11.3.3 Net Asset Value – ConocoPhillips

The sum-of-parts approach is taken in the NAV valuation for ConocoPhillips. In contrast with Devon, ConocoPhillips have a global operation and are exposed to several different taxes. Taxation has a major influence on the value, and the geographic segments are further broken down when calculating taxes.

Table 26 presents the developed reserves as presented in the 2023 annual report.

Developed Reserves per Geographic Segment					
Segment:	Crude Oil - MMbbl	Natural Gas - Bcf	Natural Gas Liquid - MMbbl	Bitumen	Total MMBOE
United States of America	1 583	4 681	498	-	2 861
Canada	7	92	4	293	319
Europa	109	591	9	-	217
Asia Pacific	91	305	-	-	142
Africa	181	172	-	-	210
Total Developed Reserves	**1 971**	**5 841**	**511**	**293**	**3 749**

Table 26 – ConocoPhillips Developed Reserves 2023

Forecasted production is estimated based on 2023 production levels and are exposed to the same 5 percent decline rate.

Production per Geographic Segment					
Segment:	Crude Oil - MBD	Natural gas - MMCFD	Natural Gas Liquid - MBD	Bitumen - MBD	Total MBOED
United States of America	742	1 495	272	-	1 263
Canada	9	65	3	81	104
Europe	64	279	4	-	115
Asia Pacific	60	48			68
Africa	48	29			53
Total Production	**923**	**1 916**	**279**	**81**	**1 602**

Table 27 – ConocoPhillips Production Rate 2023

Oil produced in Europe, Asia, and Africa follows the Brent Crude index, while oil produced in the US and Canada follows the WTI price forecast. Other benchmarks for O&G outside America were considered but disregarded due to poor liquidity and a lack of historical information. Moreover, 84,9 percent of oil and equivalents are produced in the US and Canada. Thus, implementing more benchmarks into the model would only have a minor influence on the firm value.

Variable costs for extracting resources and working capital are calculated with a production-driven approach and adjusted for inflation. Cost drivers are calculated separately for each geographic segment to account for the differences in produced quantity and production methods. CAPEX is estimated using the same methodology as Devon in the US. For the other locations, historical levels and industry reports are used.

The free cash flows are discounted on the unlevered cost of equity for each region, differentiated by the country-specific risk, according to Damodaran.

Net Present Value - Developed Reserves - Segments		
Geographic Segment:	**Discoun Rate**	**Net Present Value**
United States of America	10,26%	68 215
Canada	10,26%	7 579
Europe	10,26%	1 927
Asia Pacific	11,53%	3 680
Africa	15,69%	2 916
Consolidated		**84 317**

Table 28 – ConocoPhillips Net Asset Value Developed Reserves

The undeveloped reserves are valued as a portfolio. To account for different taxation costs and risk premiums, the inputs have been weighted by MMBOE in each region.

Black-Scholes Model (Undeveloped Reserves)	
Input Parameters	
Value of Underlying Asset (S)	41 262
Strike Price (K)	25 207
Life of the Option (T)	12
Risk in Underlying Asset (std)	15,62%
Risk-free Interest Rate	4,58%
Dividend Yield (Cost of Delay)	2,75%
Caluculations	
N (d1)	0,9438
N (d2)	0,8523
Valuation	
Synthethic Option	17 367
Intrinsiv Value	16 056
Valuation - Undeveloped Reserves	**17 367**

Table 29 – ConocoPhillips Valuation Undeveloped Reserves

The total value of ConocoPhillips's undeveloped reserves is 17,37 billion USD. The intrinsic value is 16,06 billion, and the remaining 1,31 billion USD is the value of the opportunity to delay development.

The company holds several investments in O&G companies in Asia. All investments are valued by the equity method, contributing to around five percent of the enterprise value. Undeveloped land is valued at 33,75 billion USD through precedent transactions. When comparable transactions are of lower quality, conservative estimations are made. ConocoPhillips marketing segment and LNG technology is valued 25,51 billion by a relative valuation.

The enterprise value based on the NPV method totals 174,32 billion USD. Subtracting net debt and other non-equity claims yields a share price of 133,55 USD, which is 7,4 percent below the current share price.

11.4 Risk Analysis

11.4.1 Monte Carlo Simulation

The forecasted oil price subject to its historical standard deviation is used in a Monte Carlo Simulation to derive the enterprise value. With 100 000 simulations the resulting average EV is 22 million USD higher than the calculated EV, and the standard devotion is 6,6 billion USD. 68% of the simulations yields a higher enterprise value than the implied EV in the offering price. Note that only developed and undeveloped reserves were subject to the simulated oil prices. The valuation of undeveloped land and midstream segment is expected to follow the value change of the undeveloped- and developed reserves.

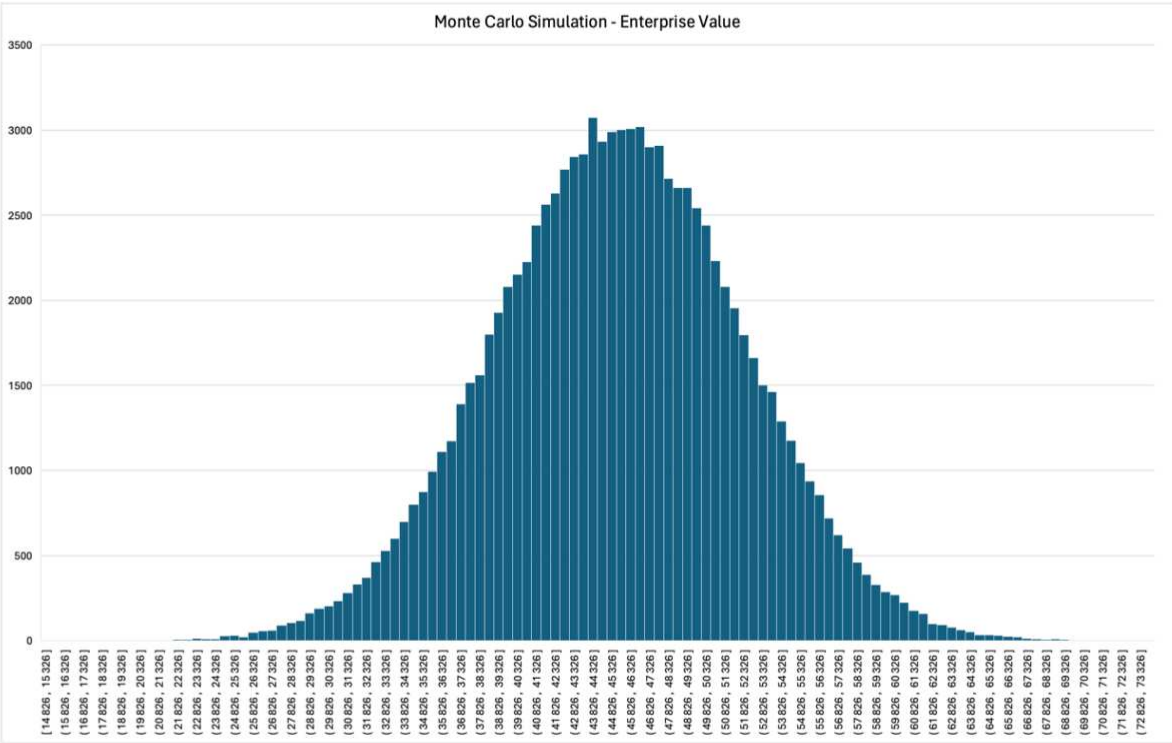

Figure 18 – Monte Carlo Simulation

11.4.2 Illustration of share price and WTI spot-price

Figure 18 illustrates 1 USD invested in Devon Energy and 1 USD invested directly in the WTI spot.

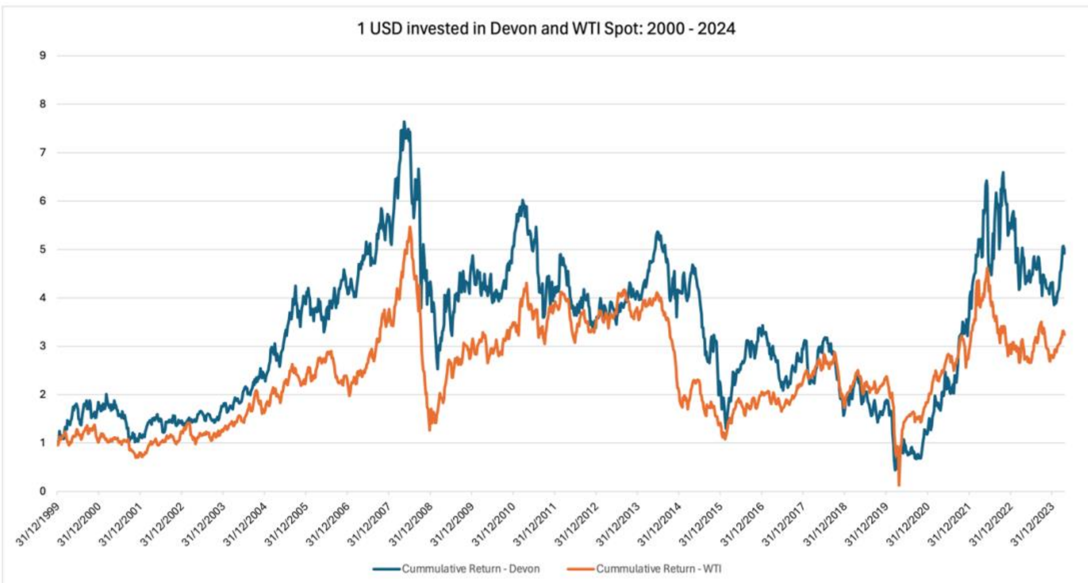

Figure 19 – Devon Share Price and the WTI spot price

Devon have outperformed the WTI index since the new millennium and inhabits a lowers standard deviation (5,8%) when compared to the WTI index (11,7%). Nevertheless, Devon's valuation is clearly highly dependent on the oil price based on the cumulative return exhibited in the figure.