A Work Project, presented as part of the requirements for the Award of a Masters Degree in Management from the NOVA – School of Business and Economics.

ONEOK Partners, L.P. (OKS)

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1457

A Project carried out in the Equity Research Field Lab, under the supervision of:
Rosário André

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Fracking America

OKS’s Opportunity for Growth

- **We initiate coverage of ONEOK Partners with a Hold recommendation.** The Price Target for FY2014 is US$61.42, which represents an upside of 12.04% from its current price.
- **Focusing on Growth:** ONEOK is currently undergoing a $6 billion capital-growth process, investing in their two growing segments: NGLs and gathering & processing.
- **Natural gas boom in the United States:** ONEOK Partners has benefited from the natural gas boom created by new techniques of retrieving hydrocarbons from shale and tight formations, particularly in the Bakken and Cana-Woodford regions.
- **Ethylene production in the Gulf Coast set to grow:** with ethane prices at decade lows, petrochemical plants in the region are expanding capacity, creating increased demand for ONEOK’s NGL fractionation and ethane transportation capacity in the region.
- **Ethane export terminal in Gulf Coast:** should support domestic ethane prices and, with demand from the petrochemical industry, should end ethane rejection by 2016.
- **Dry natural gas receives higher demand:** through domestic electricity generation from natural gas and LNG exports.

Company description

ONEOK Partners, L.P. (OKS) is a publicly traded Master Limited Partnership specializing in natural gas and natural gas liquids (NGLs) gathering, processing, storage, and transportation. OKS is based in Tulsa, Oklahoma.
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Company Overview

In 1906, Oklahoma Natural Gas (ONG) was founded as an intrastate natural gas pipelines business in Oklahoma. It subsequently expanded into the gathering, processing, storage and distribution business and changed names several times before becoming ONEOK in 1980. In 2006, ONEOK’s subsidiary Northern Border Partners was renamed to ONEOK Partners (OKS) and became a Master Limited Partner with ONEOK Inc. (OKE). Then, in 2014, ONEOK’s natural gas utilities segment split off to become ONE Gas (OGS).

Today, ONEOK Partners, L.P. (OKS) is a publicly traded natural gas and NGL gathering, processing, storage, and transportation company based in Tulsa, Oklahoma. ONEOK Partners is a Master Limited Partnership (MLP) in which its sole general partner, ONEOK Inc. (OKE), owns 38.8% of the partnership. OKS has three main segments of its business: gathering and processing (G&P), pipelines, and natural gas liquids (NGLs).¹ In the G&P segment, OKS has 18,300 miles of gathering and distribution pipelines, 16 natural gas processing plants with a combined processing capacity of 1,060 million cubic feet per day (MMcf/d), and 17,370 miles of natural gas gathering pipelines to 1,100 wellhead connections. In the pipelines segment, OKS has 6,600 miles of pipelines and 53.7 billion cubic feet (Bcf) of storage capacity at 9 underground natural gas storage facilities. In the NGLs segment, OKS has 5 NGL fractionators capable of fractionating 658,000 barrels per day (bpd), 1 ethane/propane splitter able to produce 32,000 barrels of pure ethane and 8,000 barrels of pure propane per day, 1 isomerization unit, 6 storage facilities able to store 23 million barrels of NGLs, 8,720 miles of NGL gathering and distribution pipelines, and 8 NGL product terminals.²

Expansion Projects

In 2010, OKS started a $6 billion capital-growth program, which will be completed in 2016. In 2013 and the beginning of 2014, the company completed several projects including a natural gas processing plant in North Dakota and another in western Oklahoma, the first-ever NGL pipeline to transport unfractiioned NGLs out of the Williston Basin, an NGL fractionator at Mont Belvieu, TX, and the Sterling III pipeline, which is the company’s fourth NGL pipeline connecting the Mid-Continent and Gulf Coast NGL market centers. During this time, OKS also acquired the Sage Creek natural gas processing plant in the Niobrara Shale in Wyoming. OKS has more than $3 billion of additional projects to be completed including a 540-mile NGL pipeline to transport NGL products from Oklahoma to

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¹ http://www.oneokpartners.com/About.aspx
² OKS 2013 10K pages 39 to 41
Mont Belvieu, TX, an ethane/propane splitter at Mont Belvieu, 4 natural gas processing facilities in Oklahoma, 2 NGL fractionators, and several pipeline expansions.³

Master Limited Partnership

ONEOK Partners and most of its peers are formed as Master Limited Partnerships (MLPs). MLPs are publicly traded partnerships that are managed by a general partner and owned by limited partners who own units in the company, not shares. The general partner’s goal is to increase distributions to the limited partners. The general partner often holds a minority stake in the company as well.

In order to be classified as an MLP, the partnership must generate at least 90% of its cash flow from qualifying sources, which includes activities such as exploration, gathering, processing, transporting, refining, storing, etc. in the field of natural resources such as natural gas, NGLs, among others. Qualifying sources also include generating income from real estate and the financial sectors; however, most MLPs are in the energy sector.

The biggest differences between units in an MLP and shares in a publicly listed company are voting rights and taxes. Unit holders have limited voting rights. Management decisions are made by the general partner and the unit holders can neither elect the general partner nor its board of directors. This could lead to conflicts of interest. The general partner could increase distributions to its unit holders at the expense of the limited partner’s unit holders or it could remove the minimum quarterly distribution to the limited partners.

Another difference comes in terms of taxation. MLPs are considered partnerships and so are not taxed at the partnership level. All gains and losses as well as taxes and tax deductions are passed to their unit holders. This means that unit holders may pay taxes on income that they have not yet received. Unit holders may not defer these taxes in tax-deferred retirement accounts. As such, MLPs may not be the best investment in these accounts.⁴

In the case of ONEOK Partners, OKS has a 98% limited partner interest and a 2% general partner interest in the form of 19.8 million Class B units, which OKS owns. OKS can convert these Class B units into common units on a one to one basis. OKS has one general partner, ONEOK Inc. (OKE), which, as of 13 May 2014, owns 38.8% equity interest in OKS.⁵ The board of directors of OKE manages ONEOK Partners. Common unit holders have limited voting rights and cannot vote on the directors of OKE or remove OKE as a general partner.

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⁴ http://www.rwbaird.com/bolimages/Media/PDF/Help/Important-information-about-MLPs.pdf
⁵ http://biz.yahoo.com/e/140516/oks8-k.html
Natural Gas, NGLs, Ethylene Overview

Natural gas is a mixture of hydrocarbons, made up of 70 to 90% methane (CH\textsubscript{4}), up to 20% ethane (C\textsubscript{2}H\textsubscript{6}), up to 20% propane (C\textsubscript{3}H\textsubscript{8}), up to 20% butane (C\textsubscript{4}H\textsubscript{10}), up to 8% carbon dioxide (CO\textsubscript{2}), up to 0.2% oxygen (O\textsubscript{2}), up to 5% nitrogen (N\textsubscript{2}), up to 5% hydrogen sulphide (H\textsubscript{2}S), and trace amounts of rare gases such as argon (Ar), helium (He), neon (Ne), and xenon (Xe). Dry natural gas is pure methane and is mostly used for cooking and to heat homes and businesses during the winter.

Wet natural gas includes other hydrocarbons and can be separated into dry natural gas (methane) and natural gas liquids (NGLs). From there, NGLs can be separated into NGL products, which are the individual hydrocarbons.

If ethane prices are lower than natural gas (methane) prices or if it is uneconomic to extract ethane from the natural gas stream, it will be left in the natural gas stream to be sold and burned for fuel. This is called ethane rejection.

Ethane is also used to produce ethylene by heating the hydrocarbon to 850°C in steam furnaces so that it breaks down molecularly to the point where one of the carbon bonds and two of the hydrogen bonds break, resulting in ethylene (C\textsubscript{2}H\textsubscript{4}) and several byproducts such as propylene (C\textsubscript{3}H\textsubscript{6}), crude butadiene (C\textsubscript{4}H\textsubscript{6}), pyrolysis gasoline, and hydrogen or methane fuel gas.

Ethylene is the organic hydrocarbon used to make industrial goods such as plastics, detergents, antifreeze, adhesives, lubricants, and other household products. Ethylene is the organic hydrocarbon that is consumed in the highest quantity worldwide. Ethylene can be made from ethane, propane, butane, natural gas, or naphtha. Ethane is the most efficient feedstock to produce ethylene, resulting in a 78% ethylene yield. Propane, butane, naphtha, and natural gasoline produce a 44%, 44%, 30%, and 20% ethylene yield respectively. These heavier hydrocarbons, however, produce higher rates of propylene, with naphtha, butane, natural gasoline, propane, and ethane yielding 16%, 15%, 14%, 14%, and 3% respectively.

Most ethylene production in North America takes place in the US Gulf Coast. In this region, OKS has or is in the process of building 3 NGL fractionators with a combined fractionation capacity of 370,000 bpd, an ethane/propane splitter able to split 40,000 bpd, and an ethane header pipeline which can transfer 400,000 bpd of ethane from OKS NGL fractionation and storage facilities to several petrochemical customers.

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6. [http://naturalgas.org/overview/background/]
8. IHS Chemical: World Analysis – Ethylene: 18 Production Process Overview

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Segments

OKS segments its business into three parts: NGLs, gathering and processing, and pipelines. In the NGLs segment, OKS gathers, fractionates, and treats NGLs and stores NGL products. OKS gathers NGLs for crude oil, NGLs, and natural gas producers in the Bakken, Niobrara, Cana-Woodford, and Woodford shale formations, and the Williston Basin, Mississippian Lime and Granite Wash areas. OKS then processes the NGLs and transports them to Mid-Continent and Gulf Coast markets. In the Mid-Continent, OKS owns 4 NGL fractionators. In the Gulf Coast, OKS has or is in the process of building 3 NGL fractionators, an ethane/propane splitter, and an ethane header pipeline.

OKS receives revenues from the NGLs segment through percent of proceeds (POP), fee-based, and keep-whole contracts, representing approximately 64%, 31%, and 5% of contracts in 2012. Under fee-based contracts, OKS is paid a fee for services based on BTUs gathered, treated, compressed, and/or processed. In the POP contracts, OKS keeps a percent of the residue gas or NGLs as payment for gathering, treating, compressing, and processing the natural gas. With keep-whole contracts, OKS processes the raw natural gas and keeps the processed NGLs as payment for the service.

In the gathering and processing (G&P) segment, OKS gathers and processes natural gas in Oklahoma, Kansas, Montana, North Dakota, and Wyoming. In Montana and North Dakota, OKS uses hydraulic fracturing to extract oil and NGLs from the Bakken Shale. In Wyoming, OKS gathers coal-bed methane from the Powder River Basin. The G&P segment earns revenues through fee-based, percent of proceeds (POP), and keep-whole contracts, representing approximately 57%, 41%, and 2% respectively in 2012.

In the pipelines segment, OKS owns and operates natural gas transmission pipelines and storage facilities and monetizes its pipeline segment through two levels of service contracts. The first and primary contract is the firm-service contract, in which OKS reserves a fixed quantity of pipeline or storage capacity for the term of the contract and the customer pays a fixed fee regardless of use. The second contract is the interruptible-service contract, which allows customers to use capacity not used through firm-service contracts. OKS charges these customers based on their actual usage, but cannot guarantee that excess capacity will be available.
Revenues from each segment can be further divided. NGLs revenues can be split into NGL and condensate sales, exchange service and storage revenues, and transportation revenues. G&P revenues can be broken into NGL and condensate sales, residue gas sales, and gathering, compression, dehydration, and processing fees and other. Pipelines revenues can be broken into transportation revenues and storage revenues.

While, the NGLs and G&P segments’ contracts are only 64% and 41% POP and 5% and 2% keep-whole, the revenues generated from NGL and condensate sales, which are derived from these contracts, make up 83% of total revenues for the company (assuming that all revenue adjustments are made for this segment – 2012 figures).

OKS’s NGL sales have grown consistently, from 7 thousand barrels per day (MBbl/d) in 2004 to 248 MBbl/d in 2006 to 736 MBbl/d in 2013. Despite this consistent growth, revenues from NGL sales have stagnated since 2011. This is due to a drop in OKS’s realized composite NGL net sales price, which fell from $1.08 per gallon in 2011 to $0.87 in 2013. Note that the quantity of condensate sales was not given. With this in mind, OKS’s biggest risk is commodity price risk, specifically that of NGLs.

Thirteen percent of the remaining revenues are split between storage and exchange, transportation, and services, all of which carry volumetric risk. NGL storage capacity has been 23 million barrels (MMBbl) since 2008 and dry natural gas storage has increased slowly from 51.6 Bcf in 2006 to 53.7 Bcf in 2013. Transportation revenues have remained flat, despite a slowly increasing capacity. Interstate peak transportation capacity increased from 2.4 Bcf/d in 2007 to 3.2 Bcf/d in 2013. Intrastate peak transportation capacity stayed largely stable. The utilization rate for these pipelines has varied between 80 and 90% during this time.

Services revenues from gathering, compressing, dehydrating, and processing fees have grown from $44 million USD in 2004 to $222 million USD in 2013; however, as a percent of total revenues has decreased from 7% in 2004 to 2% in 2013. Gas sales and other revenues make up the remaining 4% of total revenues and carry commodity-price risk in terms of dry natural gas prices.
Sector Analysis

The supply of natural gas in the United States has risen sharply in the past few years, thanks in large part to hydraulic fracturing, a.k.a. fracking, as well as horizontal drilling methods employed by natural gas exploration companies in shale formations. In fact, natural gas production from shale formations as percent of total natural gas produced has increased from 4% in 2005 to 24% in 2012 and the US EIA expects this figure to increase to 53% by 2040.10

The second figure on the left shows dry gas production from different shale formations in the U.S. over the past 14 years. As of February 2014, the top producing shale plays are Marcellus (35%), Barnett (13%), Eagle Ford (13%), Haynesville (11%), Fayetteville (8%), Woodford (5%), Bakken (2%), and Antrim (1%). The rest of the shale plays account for 12% of total production. OKS operates mainly in the Bakken and Cana-Woodford shale formations as well as smaller shale formations and in the Powder River Basin where the company gathers coal-bed methane.

The supply of wet natural gas, which includes methane (dry natural gas) and NGLs such as ethane, propane, butanes, and natural gasoline, has also increased sharply. From 2000 to 2011, wet natural gas proved reserves increased 87% but then was revised 7.5% lower in 2012 because of low natural gas prices, which fell from $4.15 per million BTU in 2011 to $2.75 in 2012. According to 2012 figures, proved reserves of wet natural gas are largely found in Texas (44.8 Tcf), Pennsylvania (32.7 Tcf), Louisiana (13.5 Tcf), Oklahoma (12.6 Tcf), Arkansas (9.8 Tcf), West Virginia (9.4 Tcf), and North Dakota (3.1 Tcf).11 Of these states, OKS operates mostly in Texas, Oklahoma, and North Dakota.

The EIA breaks the US down into 5 regions or Petroleum Administration for Defense Districts (PADD) as seen below.

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11 http://www.eia.gov/naturalgas/crudeoilreserves/#3
The US EIA then gives the quantity of NGLs produced by each PADD per year. As shown in the first chart on the left, the Gulf Coast, which includes the Barnett, Eagle Ford, Haynesville, and Fayetteville shale formations, is by far the highest producing NGLs PADD, producing 64% or 1625 million barrels per day (MBPD) of the nation’s NGLs in 2013. NGLs in this region are made up of 42% ethane, more than the national average, which is the cheapest NGL.

OKS gathers mainly in the Bakken and Woodford shale plays, which are in the Midwest, or PADD 2. This PADD produced 18% or 464 MBPD of the nation’s NGLs in 2013. NGLs in this region are made up of 38% propane and only 31% ethane. This means that while OKS’s revenues were stunted by a drop in NGLs prices, had their gathering facilities been in the Gulf Coast shales, they would have been even more affected as ethane prices saw the highest declines of all of the hydrocarbons since 2008.

Following the US subprime mortgage crisis and stock market crash in 2008 NGL prices have been slow to recover. An increase in supply of wet natural gas from the shale gas boom is to blame. For example, the price per pound of ethane has dropped from 30.1 US cents in 2008 to 8.8 US cents in 2013.

While this increase in supply has caused prices to drop, demand has been slow to pick up the slack needed to stabilize prices to pre-boom levels. Demand for natural gas and NGLs, however, is expected to increase as infrastructure is being built in the areas of natural gas liquefaction and export terminals, energy production, and petrochemicals as noted in the sections below.
Demand for NGLs: Petrochemical Industry

As discussed earlier, the breakdown of a barrel of NGLs sold in Mont Belvieu is approximately 37% ethane, 32% propane, 14% natural gasoline, 11% normal butane, and 6% isobutane. Each of these hydrocarbons has a distinct use.

**Ethane** can be burned for fuel or used to make ethylene. In ethylene production, ethane is the most efficient feedstock as it yields 78% ethylene compared to propane, which yields 48%, and naphtha, which yields 31%. Ethylene production in the US is mostly on the Gulf Coast, with 27 plants able to produce 26,724 metric tons of ethylene in 2013. *(Source: IHS World Chemical)*

With the shale gas boom and the subsequent drop in ethane prices, domestic ethylene production has now become extremely profitable. So much so that it is now expanding rapidly. Ethylene production from ethane increased 35% from 2008 to 2013. The initial increase in ethane prices from 16.2 cents/lb in 2009 to 25.8 cents/lb in 2011 came from an increase in operating rate from 80% to above 90% of the currently operating ethylene plants. Prices then fell again as operating capacity hit its ceiling and couldn’t fill the slack in supply.

This expansion is set to continue with ethylene capacity set to grow over 50% by 2018. Ten new ethane crackers are scheduled to be built starting in 2014, 8 of which will be in the Gulf Coast. This will increase ethylene production capacity by 12.5 million metric tons per year (MTPA). Ten current plants also plan to expand their capacity, adding 1.5 million MTPA of ethylene producing capacity. Once finished, these projects will increase total domestic ethylene production capacity by 52% to 41 MTPA. Most new projects are expected to be completed between 2016 and 2018 and expansion projects will be completed between now and the end of 2015.

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12 [http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?v=x-PET&s=METFPUS1&f=A](http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?v=x-PET&s=METFPUS1&f=A)
13 IHS Chemical World Analysis – Ethylene 2013 Report

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**Table: Average Industry Prices**

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<tbody>
<tr>
<td>Ethane (cents/lb)</td>
<td>18.9</td>
<td>21.0</td>
<td>22.1</td>
<td>26.7</td>
<td>30.1</td>
<td>16.2</td>
<td>20.2</td>
<td>25.8</td>
<td>13.4</td>
<td>8.8</td>
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<tr>
<td>Ethylene (cents/lb)</td>
<td>33.8</td>
<td>44.2</td>
<td>48.1</td>
<td>48.8</td>
<td>58.5</td>
<td>33.9</td>
<td>45.9</td>
<td>55.7</td>
<td>56.9</td>
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*Source: IHS Chemical, CMAI*

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**Diagram: Ethylene Production Plants**

*Source: IHS World Chemical*

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**Diagram: US Gulf Coast Ethylene Plants**

<table>
<thead>
<tr>
<th>Company</th>
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<th>Capacity</th>
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<tr>
<td>BASF</td>
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<td>Chevron Phillips</td>
<td>Texas</td>
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<td>696</td>
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<tr>
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<tr>
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<td>Fluka USA</td>
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<td>ineos</td>
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<td>476</td>
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<tr>
<td>Javelina</td>
<td>Texas</td>
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<td>L.D. Fleurieens</td>
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<td>Sabol</td>
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<tr>
<td>Westlake</td>
<td>Louisiana</td>
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</tr>
<tr>
<td>Williams/SABIC</td>
<td>Louisiana</td>
<td>476</td>
</tr>
</tbody>
</table>

*Capacities = metric tons per year in 2013

Source: IHS World Chemical
In addition to increased ethylene production, ethane prices will be supported by Enterprise Products Partners ethane export terminal, which is scheduled to start operating by late 2016 and will be able to load 240,000 barrels of pure ethane per day. This will be the largest export terminal of its kind in the world.\(^{15}\)

This will cut down on the amount of oversupply, which currently exceeds demand by 300,000 barrels per day, putting downward pressure on ethane prices.\(^{16}\) To put this into ethylene production perspective, given a 78% ethylene yield and an operating capacity of 350 days, this would increase annual output by 65 million barrels of ethylene per year or 19% of 2013 ethylene production.

Ethane supply may also be slowing. Total US production of ethane grew 39% from 701 million barrels per day (MBPD) in 2008 to 974 in 2012. Production then declined in 2013 to 951 MBPD. Production will likely depend on ethane prices as well, with lower prices leaving ethane uneconomical to extract.

While the petrochemical industry is benefiting from the low ethane prices, OKS’s revenues have stagnated due to ethane rejection. With the increased ethylene capacity coming on line starting in 2016, OKS believes that ethane rejection will end at this point. We agree. For this reason, OKS’s 2014 and 2015 revenues will largely depend on increased capacity. OKS’s growth projects seem perfectly timed, adding processing, fractionation, and transportation capacity before the large increase in ethane demand.

In addition to the growth projects, to feed this growing demand, OKS has four NGL pipelines feeding into Mont Belvieu with a combined capacity of 783,000 bpd, four NGL fractionators with a combined capacity of 370,000 bpd, a 105-acre salt dome structure capable of storing over 14.6 million barrels, a splitter able to split 40,000 barrels per day, and an ethane header pipeline that connects OKS’s facilities in Mont Belvieu to petrochemical customers on the Gulf Coast with a peak transportation capacity of 400 MMBbl/d.


\(^{16}\) [http://www.dow.com/investors/pdfs/presentations/USGC_101211.pdf]
As noted on the first chart to the previous page, like ethane, propane is also used as a feedstock in the petrochemical industry. Nearly half of all propane in the US is used to make propylene or ethylene. However, it isn’t as valuable as ethane in producing ethylene as its ethylene yield is much lower, 42% compared to ethane’s 78%. Propane has a myriad of other uses including fuel for heating and cooking, electricity generation, and to power certain vehicles. In the US, propane is also used to dry grain. As shown in the second chart on the left on the previous page, propane exports have consistently risen since 2005. The increasing amount of exports as well as the hydrocarbon’s versatility have kept propane prices mostly stable for the past decade. In our forecasts for OKS we have taken this into consideration and believe that propane prices will remain stable.

Demand for propane as well as butane will increase once the ethylene production capacity has increased in 2016. These hydrocarbons can be substituted for ethane in the production of ethylene and once ethane prices rise their demand will increase as well.

Natural Gasoline, normal butane, and iso-butane are used for motor fuel, denaturant for ethanol, and as diluents for crude oil. Butane also has limited use in the petrochemical industry. These three hydrocarbons have largely recovered from their 2008 lows. Natural gasoline was currently trading at $2.13, which is above its 2008 low of $1.31 USD/gallon. Iso-butane and butane both recovered from their 2008 lows of $1.19/gallon and $1.08/gallon and then slipped again in 2013 to $1.43 and $1.39. OKS has an isomerization plant in Conway, Kansas that converts normal butane to iso-butane and profits from the price differential. It has likely seen little use outside of 2011. Iso-butane is used to increase octane in motor gasoline.

17 https://rbnenergy.com/lets-get-cracking-part-II
Demand for Dry Natural Gas: Domestic + LNG

According to the US EIA, North America has by far the largest demand for dry natural gas. The US, Canada, and Mexico consume roughly 26% of the world’s total or 31 trillion cubic feet (Tcf). Asia is quickly catching up moving from 16% in 2008 to 20% in 2012, lead by China and Japan, while Europe is steadily declining from 19% to 16% over the same period. Comparing individual countries, the US is the largest consumer, consuming 21% of the world’s total or 25.5 Tcf. Russia lags behind, consuming 13%. China’s demand has nearly doubled over the time period, from 2.7 Tcf to 5.1 Tcf, but still consumes only 4% of the global total.²⁰

Of the natural gas consumption in the US, 31% or 8.1 Tcf is used to generate electricity, and 29% or 7.5 Tcf is used in industry. The use of natural gas to generate electricity has doubled from 1997 to 2013, from 4 Tcf to 8.1 Tcf per year.²¹ Despite a slight decrease in consumption of natural gas in this sector from 2012 to 2013, electricity generated from natural gas is set to increase in the coming years, while generation from other natural resources such as coal will decrease. This trend has already started. From 1997 to 2012, electricity generated from natural gas has increased from 21.6% to 29.4%. During the same time, electricity generated from coal has dropped from 50% to 36.7%. And the trend set to continue. The US EIA predicts that by 2020, 70% of all new electricity-generating capacity will be produced by natural gas and by 2035 electricity from natural gas will surpass that from coal.²² These estimates may appear sooner as utilities companies have been closing existing nuclear and coal plants in favor of natural gas ones.²³,²⁴

OKS has already benefitted directly from this overall trend. For example, one of its subsidiaries announced in April 2014 that it will be providing the natural gas transmission pipelines necessary for a new natural-gas fired electric-power generation plant being built in Kentucky.²⁵ OKS will benefit further from this trend as an increased demand for dry gas will lift methane prices. OKS is paid in-kind or received a percentage of the residue gas in certain contracts.

²⁰ http://www.eia.gov/cfapps/ipdbproject/IEDIndex3.cfm?tid=3&pid=26&aid=2
²¹ http://www.eia.gov/dnav/ng/ng_cons_sum_dcu_nus_a.htm
²² http://www.economist.com/blogs/schumpeter/2012/05/americas-falling-carbon-dioxide-emissions?page=1
²⁴ http://www.cta.gov/todayinenergy/detail.cfm?id=15491
²⁵ http://ir.oneokpartners.com/phoenix.zhtml?c=104562&p=irol-newsArticle_Print&ID=1916457&highlight=
Exporting LNG

Demand for US natural gas will also come through exports of LNG, which will increase as US liquefaction capacity is projected to grow from 2.52 billion cubic feet per day (Bcf/d) in 2015 to 11.38 Bcf/d in 2018, making the U.S. the second largest LNG exporter in terms of liquefaction capacity, after Australia.26 Most of these exports will come from the US Gulf Coast as six of the 11 current LNG terminals are currently in the Gulf Coast and several world-scale LNG export terminals are being built there.27

The target market for these LNG exports will largely be Asia. Japan, South Korea, and Taiwan alone make up 58% of total LNG imports in 2012.28 Prices in the region were five times that in the US Gulf Coast in 2013.29 China’s current LNG imports are small but are projected to rise as they are currently building 6 LNG terminals and are projected to increase LNG consumption from 81 billion cubic meters (bcm) in 2008 to 260 bcm in 2015.30

US LNG exports will likely face competition from Russia, Qatar, and Australia. Russia has the largest proved natural gas reserves in the world 1,688 (Tcf). 76% of Russia’s total natural gas exports currently go to Western Europe through its pipelines. Of Russia’s LNG exports, 76% go to Japan, 20% to South Korea, and 3.5% to China.31 Russia’s Gazprom also recently guaranteed China’s National Petroleum Corp over 38 billion cubic meters of natural gas over 30 years.32 While Russia is the world’s largest natural gas exporter, Qatar is the world’s largest LNG exporter and has been so since 2006. The emirate exports 63% of its LNG to Asia and 30% to Europe.33

Qatar’s dominance in the LNG market is soon to change, however. Australia and the U.S. are quickly building LNG liquefaction capacity and should become the world’s first and second LNG exporters by 2019. By this time, Australia will be able to export 16.3, the U.S. 11.38, and Qatar 10.78 Bcf/d of LNG.34

With ample assets in the Gulf Coast, OKS will largely benefit from the increased LNG exports. Not only will this support dry gas prices, which OKS is paid through their POP and keep-whole contracts, but it will also increase the need for their services in the area.
Environmental Risks

The current expansion of natural gas hasn’t been without its risks. There are concerns over the long-term environmental effects of hydraulic fracturing such as groundwater contamination and seismic activity. This has led to certain state and local governments to ban the technique, such as the state of New York, which has put a moratorium on further fracking in the state.35

Research published in the *Proceedings of the National Academy of Sciences* stated that four-fifths of wells near drilling sites in the Marcellus Shale contained higher concentrations of methane and other chemicals than wells farther away. The study blamed poorly sealed well casings for the leakage. MIT also found a few instances of water contamination caused by fluid spills on the surface and a study has linked fracking with small tremors in England.36

Another concern is the fracking fluids themselves, which contain toxic and radioactive materials that can come back up the well shafts and settle into ground water or break through poorly sealed wells. Fracking fluids consist of mostly water and sand, but also can contain certain poisonous chemicals such as ethylene glycol, which can cause kidney failure if ingested and glutaraldehyde, which is used as a disinfectant and is poisonous if ingested.37

Earthquakes have also been linked to the use of hydraulic fracturing. Geologists in Ohio linked small earthquakes to fracking in April 2014, leading the state authorities to add new regulations to the method.38 The amount of seismic activity in Oklahoma has increased by a large amount in recent years and is thought to be linked to the use of hydraulic fracturing in the state. The US Geological Survey claims that the state, which averages two earthquakes per year, has experienced 183 earthquakes of magnitude 3.0 or higher in the past six months.39,40

Due to these concerns, the International Energy Agency (IEA) has developed a study examining the cost of proper regulation on the industry and found that it would increase the cost of shale-gas exploration by 7%. In this report, the IEA set out the “Golden Rules” for the “Golden Age of Gas,” which include full transparency, measuring environmental impacts, preventing leaks into aquifers, monitoring and properly disposing of wastewater, limiting flaring, and improving control.41

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39 http://www.npr.org/blogs/thetwo-way/2014/05/05/309888859/usgs-okla-fracking-has-increased-chance-of-damaging-quake
40 http://stateimpact.npr.org/oklahoma/tag/earthquakes/
41 http://www.iea.org/newsroomandevents/pressreleases/2012/may/name,27266,en.html
These risks have come public, most notably in two mainstream documentaries, Gasland and Gasland 2, produced in 2010 and 2013 respectively, in which the filmmaker shows environmental damage including contaminated air and drinking water in areas near natural gas drilling sites. The filmmaker blames the natural gas industry for the damage and the governing authorities for ignoring the problem. One of the communities highlighted in the films is Dimock, Pennsylvania, which filed a lawsuit Fiorentino v. Cabot Oil & Gas Corp, a natural gas producer. Cabot agreed to set aside $4.1 million for 19 families affected by the damage, which includes contaminated water wells.\(^{42}\)

Other than lawsuits, environmental damage can affect the natural gas industry in a more profound way, in the form of increased government regulation or even an outright ban of hydraulic fracturing, which could side-rail the shale revolution. Several cities and states have established a moratorium on the practice. For example, the state of New York, under which lies part of the Marcellus Shale, has had a moratorium on fracking in place since 2008. Pennsylvania banned the movement of wastewater to treatment facilities in the state in 2011, forcing them to treat water in Ohio.\(^{43}\) The city of Los Angeles also has a moratorium on fracking.\(^{44}\)

Natural gas companies and their investors should be aware that these environmental concerns affect them too. Class-action lawsuits and sweeping government regulation on the drilling technique could materially affect shareholders and the companies' bottom line.

ONEOK Partners has an advantage as far as environmental risks are concerned. Most of the political activism has happened in more liberal states such as New York, Pennsylvania, and California (Los Angeles). OKS operates in more conservative states with governments that are friendlier to the oil and gas industry and is unlikely to face much in the way of bureaucracy. However, if hydraulic fracturing is restricted nation-wide, OKS would be affected by the reduced volumes of natural gas and NGLs extracted.

If these environmental risks vanish, then there will be a large payoff for competitors who operate in the Marcellus shale and OKS will have missed out on that opportunity. If there’s heavier regulation, then OKS made the right decision to stay out.

\(^{43}\) http://online.wsj.com/article/APdf0bd08855b4d4a880080a49aa820f75.html?
\(^{44}\) http://online.wsj.com/news/articles/SB10001424052702303532704579477931878610414?KEYWORDS=fracking&mg=reno64-wsj
Competitors

OKS has three main competitors for delivering fractionated NGLs to the Gulf Coast petrochemical industry: Enterprise Products Partners, Williams Partners, Targa Resource Partners, and Boardwalk Pipeline Partners.

Enterprise Products Partners L.P. (EPD) is a midstream energy company that gathers, processes, treats, stores, and transports natural gas, NGLs, and crude oil, as well as transports refined products and petrochemicals and is OKS’s largest competitor in terms of market capitalization. EPD’s contract structure is more conservative than OKS’s with 43% fee-based, 38% commodity based, and 19% mixed contracts. As EPD’s contract structure more dependent on commodity prices than WPZ’s and less than NGLS’s it makes sense that their beta is also in the middle at 0.77.

Like OKS, EPD will have an ethane pipeline that runs directly to petrochemical plants in the Gulf Coast. EPD’s pipeline, called the Aegis ethane pipeline, will be 270 miles long running from Mont Belvieu, TX to plants between Beaumont, TX and Napoleonville, LA, with a peak capacity of 425,000 barrels of pure ethane per day when completed in 2015. This pipeline will have a slightly larger capacity than OKS’s ethane header pipeline’s capacity of 400,000 barrels per day. OKS’s ethane pipeline has already been completed and on line.

EPD has three distinct advantages over OKS. EPD gathers natural gas and NGLs from the biggest US shale plays, Marcellus, Barnett, Haynesville, Permian Basin, and Eagle Ford. EPD has nearly double the fractionation capacity, able to fractionate 1,153 MBPD, while OKS’s peak fractionation capacity is 658 MBPD. Finally, EPD has an additional outlet for its ethane sales through exports. EPD has its own NGL import/export terminal in Houston capable of transferring 14,000 barrels per hour.

EPD’s biggest weakness is its safety record, which was tarnished in February 2011, when the company experienced an explosion at their west storage facility in Mont Belvieu, causing one casualty. The fire was contained and the facility was back on line in one day.

45 http://www.enterpriseproducts.com/corpProfile/businessProfile.shtml
46 http://www.reuters.com/article/2011/02/08/us-texas-explosion-idUSTRE71752U20110208
Williams Partners (WPZ) is a natural gas gathering, processing, treating, NGL fractionation, storage, and transportation, and oil transportation company based in Tulsa, Oklahoma. WPZ is OKS’s a direct competitor in that the company also gathers and processes hydrocarbons from the Rocky Mountains and Mid-continent regions. WPZ also gathers and processes natural gas and NGLs from the Marcellus shale. WPZ’s contract structure is very conservative with 72% fee-based, 26% keep-whole, and 2% percent of liquids contracts. With revenues stabilized by their contract structure, it is no wonder that WPZ’s beta, at 0.45, is the lowest of the three.

One of WPZ’s strengths is its vertical integration. WPZ has an ethylene and propylene production facility in the Gulf Coast capable of producing 90 million pounds of propylene and 1.3 billion pounds of ethylene, which is being expanded to produce 1.95 billion pounds of ethylene.

Like EPD, WPZ also had a safety incident recently. In 2013, there was an explosion at WPZ’s Gulf Coast propylene and ethylene plant releasing over 31,000 pounds of toxic chemicals, killing two employees, and injuring 114 others. Since the date of the accident, all production at the plant has completely stopped, but is projected to restart in June 2014.4748

Targa Resource Partners (NGLS) is a midstream company based in Houston, TX specializing in gathering, compressing, treating, processing, and selling natural gas; storing, fractionating, treating, transporting, and selling NGLs and NGL products; gathering, storing, and terminaling crude oil; and storing, terminaling, and selling refined petroleum products. NGLS operates in the Permian Basin, Barnett Shale, as well as onshore sites in Louisiana and in the Gulf of Mexico. NGLS has the second largest fractionation ownership position at Mont Belvieu and an NGL export facility on the Gulf Coast, which is connected to its Mont Belvieu storage facilities.49 NGLS’s contract structure has the most to gain from the increase in NGLs prices with only 3% fee-based contracts. The remaining contracts are 43% POP, 33% mixed, and 21% keep-whole. NGLS’s reliance on NGLs prices is reflected in their relatively high beta of 1.01.

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48 IHS Chemical – North American Light Olefins Market Advisory Service – Issue 403 – 23 May 2014
49 http://www.targasources.com/about-us/overview
SWOT Analysis

Strengths

OKS’s greatest strength is its position in the NGLs segment. OKS is in the middle of a $6 billion capital-growth program, which given current projects is in the process of expanding NGL gathering and distribution pipeline capacity by 863 MBbl/d and fractionation capacity by 300 MBbl/d and introducing an ethane/propane splitter and ethane header pipeline that will feed into the petrochemical plants in the Gulf Coast. In addition to these projects, OKS has hinted at other unannounced projects that will increase this capacity even further. OKS’s increased NGL capacity will be able to feed into the increased demand for ethane, propane, and butane, which the Gulf Coast petrochemical industry uses to produce ethylene. Demand for these hydrocarbons will support NGLs prices when the Gulf Coast petrochemical industry expands starting in 2006.

At this point, OKS’s contract structure will become a strength again. 69% of OKS’s NGLs contracts and 59% of OKS’s G&P contracts are either POP or keep-whole, meaning that OKS’s revenues are largely dependent on commodity prices. A large majority, at least 83%, of OKS’s revenues comes from NGL sales. Due to an expansion of current ethylene production capacity starting in 2014, we expect NGL prices to remain stable. Then, in 2016, when ethylene production capacity in the Gulf Coast increases by over 50% and Enterprise’s ethane export terminal has begun to operate, we expect NGL prices to increase. OKS’s revenues will largely follow this pattern, remaining stable or growing slowly in 2014 and 2015 and then experiencing rapid growth in 2016 and 2017.

OKS’s third strength, the location of its assets, can be seen as both a strength and a weakness. OKS’s gathering and processing facilities are in Oklahoma, Kansas, North Dakota, Wyoming, and Montana. These states tend to be friendlier than others to the oil and gas industry and so OKS should face less legal red tape. Companies in states like Pennsylvania and New York, where a large portion of the Marcellus Shale is located, will face more stringent bureaucracy. This should keep OKS from experiencing any long-term interruption in services due to legal or regulatory constraints.

51 http://ecowatch.com/2013/06/21/pennsylvanians-demand-clean-water-moratorium-on-fracking/
Weaknesses

As stated above, the location of OKS’s operations is a strength, but also its biggest weakness. OKS works largely in the Cana-Woodford, Bakken, and other smaller shale formations in the Mid-Continent. The entire Midwest region, in which OKS gathers, only produces 18% of total US NGLs. OKS is completely absent from the US’s largest shale play, the Marcellus, which produces 35% of the February 2014 shale gas in the US.

Opportunities

There are a lot of opportunities for OKS. Further shale exploration should increase demand for OKS’s G&P services. OKS should expand assets into the Barnett, Eagle Ford, Haynesville, and Fayetteville shale plays in the Gulf Coast to take advantage of their higher quantities of NGLs and relative proximity to Mont Belvieu.

With the increase in ethylene production capacity coming to the Gulf Coast between 2016 and 2020, OKS has assets well placed in the area. OKS should ensure that their ethane header pipeline is the one serving the highest margin and highest consuming ethylene producers in the area. OKS will largely miss the opportunity to export their ethane as Targa and Enterprise will most certainly export their own stock. However, OKS can benefit from this competition leaving the Gulf Coast, where it should focus its supplies.

Environmental risks in North Dakota’s Bakken shale may bring OKS some benefits. In North Dakota, 30-35% of all natural gas is flared because there is insufficient storage and transportation infrastructure. OKS has 56% of its current investments going toward building out infrastructure in the Bakken, which could reduce this waste and bring in higher revenues.  

Threats

OKS’s biggest threat is the increase in government regulation that would limit or prohibit shale gas production in the regions where OKS currently gathers and produces natural gas and NGLs. A major environmental incident may lead to this outcome.

Another threat to OKS’s revenues is competition to supply ethane to the Gulf Coast ethylene industry. Enterprise’s 270-mile ethane pipeline from Mont Belvieu to the Gulf Coast refineries scheduled to be completed in 2015 is an example of the increasing competition to supply the petrochemical industry.

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Valuation

To conclude our analysis, we are valuing ONEOK Partners at $61.42 per unit, which is a 12.04% upside compared to its May 29 closing price of $54.82. For this reason, our final recommendation for OKS is a hold.

Discounted Cash Flow Model

Our main valuation methodology was the discounted cash flow method. Through this approach, we analyzed historical data from financial statements as well as sector and company specific information in order to forecast free cash flows into the future. These cash flows were explicitly forecast for the next ten years and given a perpetuity growth rate for the following years.

Looking at the segmented data, revenues from the G&P segment were further split into NGL and condensate sales, residue gas sales, and gathering revenues. Regarding NGL and condensate sales, the volume of NGL sales has increased by nearly 66% between 2011 and 2013 due to expansion projects. This offset the drop in realized composite NGL net sales price, which declined by 20% over the same period. This decline in sales price has likely bottomed as one key hydrocarbon, ethane, has been left in the NGL stream to be sold with methane due to its low price. Prices will likely remain low until 2016 when world-scale ethylene production in the Gulf Coast comes online. We expect continued growth rates in this part of the G&P segment for the next three years due to expansion projects and then a further boost from 2016 to 2018 due to the boost in demand for ethane, propane, and butane from the petrochemical industry leading to a recovery in NGLs prices.

Residue gas sales are likely to grow slowly until 2018. Despite an increased capacity for residue gas from 317 billion BTUs per day to 497, a 57% increase from 2011 to 2013, realized residue gas net sales price has dropped from $5.47 per million BTU to $3.53 over the same time period, a 35% decrease. Residue gas is the pure, dry natural gas, methane. Prices are likely to remain flat for the coming years with the glut in supply. Demand will increase as electric-generators are converted from coal to natural gas in the US and as liquefaction plants come on line to feed global LNG demand. LNG liquefaction capacity is expected to increase from none to 2.52 Bcf/d in 2015 to 7.18 Bcf/d in 2017 and 11.38 Bcf/d in 2018, making the US the second largest exporter of LNG in the world, passing Qatar, but still trailing Australia.53

Revenue from gathering, compression, dehydration, and processing fees is likely to continue growing for the next few years as these services are required as new wellheads are being drilled in the shale formations.

NGLs Segment:
1) NGL and condensate
   - high growth due to:
     - expansion projects
     - NGL price recovery
2) Residue gas
   - slow growth until 2018:
     - LNG export capacity
     - electricity generation
3) Gathering, etc.
   - stable growth

The pipelines segment’s revenues were further split into transportation, storage, and gas sales and other. Revenues for the segment as a whole have declined most years since 2004. Transportation revenues are no exception. They have declined from $383 million in 2004 to $233 million in 2013, an annualized decline of 5.39%. Despite this overall decline, transportation revenues have leveled off around $225 million since 2006, and are forecast to remain stable for the foreseeable future. Storage revenues, on the other hand, have grown at an annualized rate of 4%, from $49 million in 2006 to $70 million in 2013. Storage revenues are forecast to continue to grow, yet at a slower pace, of 2% per year. Finally, gas sales and other revenues are likely to remain stable for the foreseeable future. OKS has not committed any of its $6 billion growth projects to the pipelines segment and will likely see stable revenues from this segment.

Revenues from the NGLs segment were split into NGL and condensate sales, exchange service and storage revenues, and transportation revenues. NGL commodity prices, particularly that of ethane, propane, and butane, will stabilize and grow slowly from this year until 2016 as current petrochemical plants expand capacity. At this point, these hydrocarbon prices will recover. For this reason, each part of the NGL segment’s revenues is forecast to grow slowly until 2016, experience a period of growth until 2020, and then drop back to normal growth rates into perpetuity.

At this point, non-operating assets, such as investments in unconsolidated affiliates, were added to each segment and non-operating liabilities were subtracted from each segment. In anticipation of a legal dispute, five million USD have been set aside in 2014 to pay for legal fees and damages.

In this model, each segment was valued separately and then discounted using individual discount rates before being combined to value the company as a whole. These forecasts and methods used value OKS at $16.1 billion USD or $65.83 per unit.

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54 See Appendix ii or more information on discount rate methodology
Dividend Discount Model

With a high dividend yield and steady revenue stream, the dividend discount model is arguably a good model to value ONEOK Partners. In our second valuation, we compared our results from the discounted cash flow model to three different scenarios of the dividend discount model. This model uses a 5.33% discount rate to discount future dividend payments.\(^{55}\)

In the first scenario, OKS paid a constant $3.01 dividend, which the company plans to pay in 2014, into perpetuity with no growth. This model would value OKS at $56.47 per unit. Given its history of a high dividend growth rate, this is unlikely. We give this scenario 5% likelihood.

In the second scenario, OKS’s dividend grows in perpetuity at the same rate as the growth of natural gas consumption in the US over the past 30 years, which is 1.17%.\(^{56}\) This model would value OKS at $72.36 per unit. This scenario is much more likely than the first, with 45% likelihood.

In the third scenario, OKS’s dividend grows at the same rate as the company’s net income for 10 years and then pays that final amount into perpetuity with no growth. This would value OKS at $67.25 per unit with 50% likelihood.

Using the weighted average of these scenarios, OKS should be valued at $69.01 per unit. This valuation may be exaggerated as natural gas reserves are not unlimited and therefore a perpetual dividend may not be possible unless the company diversifies its assets.

Relative Multiples Method

Finally, to confirm our previous valuation results, we compared relative multiples such as price to earnings (P/E), price to book (P/B), enterprise value to earnings before interest, taxes, depreciation, and amortization (EV/EBITDA), and dividend yield.

The figure on the left shows this comparison and from this information it appears that OKS is vastly undervalued compared to the average of its peers given its P/E ratio of 20.07 compared to 62.43 for the peer average. Even with the two outliers, MWE and RGP, removed from the peer group, the average P/E is still above OKS at 28.63. This would value OKS at $78.39 per share, a 42.99% premium to today’s price. This lower valuation may hint at investors’ caution regarding OKS’s contract structure and the possibility that NGLs prices do not recover in 2016.

\(^{55}\) For more information regarding discount rates, please see Appendix ii

\(^{56}\) http://www.eia.gov/dnav/ng/ng_cons_sum_dcu_nus_a.htm

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**Historical Dividend Payments**

<table>
<thead>
<tr>
<th>Year</th>
<th>Annual Dividend per Unit</th>
<th>Growth Rate</th>
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</thead>
<tbody>
<tr>
<td>2006</td>
<td>$1.80</td>
<td>-</td>
</tr>
<tr>
<td>2007</td>
<td>$1.99</td>
<td>10.56%</td>
</tr>
<tr>
<td>2008</td>
<td>$2.15</td>
<td>10.53%</td>
</tr>
<tr>
<td>2009</td>
<td>$2.17</td>
<td>1.17%</td>
</tr>
<tr>
<td>2010</td>
<td>$2.23</td>
<td>2.76%</td>
</tr>
<tr>
<td>2011</td>
<td>$2.33</td>
<td>4.48%</td>
</tr>
<tr>
<td>2012</td>
<td>$2.59</td>
<td>11.16%</td>
</tr>
<tr>
<td>2013</td>
<td>$2.87</td>
<td>10.81%</td>
</tr>
<tr>
<td>2014 E</td>
<td>$3.01</td>
<td>4.88%</td>
</tr>
</tbody>
</table>

Source: OKS 2013 10K
We also compared OKS’s P/B ratio to that of its peers, as natural gas companies tend to be heavily laden with assets, we felt that this multiple may be relevant in this case. OKS’s P/B multiple is 2.58 compared to the peer group average of 2.28. This would value OKS at $48.56 per share, an 11.42% discount to today’s price. Given daily swings in asset prices, this largely reflects that OKS is currently fairly valued and that its assets are being used to produce revenues at the peer average rate.

We also considered the EV/EBITDA multiple. Given OKS’s EV/EBITDA multiple of 15.37 to the peer group’s 17.61, OKS should be worth $62.96 per share, a 14.81% premium to today’s price. This also largely reflects that OKS is currently fairly valued.

The final relative multiple that we compared is the dividend yield. Given the nature of the industry and its propensity to pay out high dividends, this multiple is quite relevant in this situation. OKS paid out $2.98 per share in the last four quarters, giving it a dividend yield of 5.42%. Over the same period, its peers averaged a yield of 5.40%. Using the dividend yield as a relative multiple, OKS should be worth $55.15 per unit, a 0.56% premium to today’s price.

Finally, we compared the solvency ratios, debt-to-assets and debt-to-equity with that of OKS’s peer group. The solvency ratios to the left show that the industry in general is highly levered, averaging 39% debt-to-assets and 89% debt-to-equity ratios. OKS is even more levered at 47% debt to assets and 121% debt to equity. This is because OKS is in the middle of undertaking a $6 billion capital growth project and has taken on a large amount of debt to finance this. This will increase OKS’s beta compared to its peer group due to increased leverage.
Scenario Analysis

With the expanding natural gas and NGLs production in the US along with projected increasing demand for natural gas and NGLs through electricity generation, LNG export market, and petrochemical industry, OKS has many opportunities for growth. However, certain scenarios could keep OKS from extracting its full value from this scenario. Potential environmental risks could derail shale exploration and increased demand may not materialize.

In the worst-case scenario, a major environmental disaster occurs, resulting from hydraulic fracturing or some other method used in extracting shale gas. In this scenario, the federal authorities would ban the practice outright, forcing production back to pre-boom levels, which were declining at the time. This would put a large damper on the company’s G&P and NGLs segments. OKS’s $6 billion capital investment project would be halted and the current $3 billion spent in expansion would have been wasted. Dividend payments would be cut to zero until the company was able to service all of its debt sufficiently. In this scenario, using the sum of the segments value and subtracting $3 billion for wasted spending, we would value OKS at $10.59 per unit.

Another scenario is if ethylene demand does not meet its growth expectations. This would happen if the growth in the housing market and the general economy slows as the price of ethylene is largely correlated with these two indicators. A low demand for ethylene would keep ethane prices at all time lows, leaving ethane rejection to continue much longer than 2016, when it is predicted to end. In this case, the NGLs sector would be most affected for OKS, leaving it worth 10% of its forecast value. This would give OKS a value of $60.40 per unit.

A final scenario is that global LNG demand is met by Russian and Australian exports. This is ever more likely as Russia and China recently signed a 30-year deal for Russia to provide China with 38 billion cubic meters of natural gas.\(^\text{[57]}\) If 18% of US natural gas is scheduled to be exported by 2040, this would likely hurt OKS’s residue gas revenues to that extent, bringing OKS’s per unit valuation to $60.31

In the best-case scenario, there is no environmental disaster and all three potential sources of demand materialize. These assumptions were made for the valuation in the discounted cash flow model, in which OKS was given a value of $64.78 per unit. We are allocating an 68% chance of materializing to this scenario. Combining these likelihoods gives OKS a final valuation of $61.42.

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\(^\text{[57]}\) http://www.theguardian.com/world/2014/may/21/russia-30-year-400bn-gas-deal-china
### Financial Statements

#### Income Statement

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
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<tbody>
<tr>
<td>Revenues</td>
<td>11,869,273</td>
<td>12,401,132</td>
<td>12,711,570</td>
<td>13,037,259</td>
<td>14,427,824</td>
<td>15,989,357</td>
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<tr>
<td>Cost of sales and fuel</td>
<td>10,222,213</td>
<td>10,608,149</td>
<td>10,857,925</td>
<td>11,118,886</td>
<td>12,347,821</td>
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<td>Net margin</td>
<td>1,647,060</td>
<td>1,792,983</td>
<td>1,853,645</td>
<td>1,918,373</td>
<td>2,080,003</td>
<td>2,260,124</td>
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<td>Operations &amp; maintenance</td>
<td>464,633</td>
<td>529,219</td>
<td>548,823</td>
<td>569,822</td>
<td>614,446</td>
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<td>Depreciation &amp; amortization</td>
<td>236,743</td>
<td>248,553</td>
<td>256,175</td>
<td>268,497</td>
<td>288,968</td>
<td>311,676</td>
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<td>60,351</td>
<td>61,960</td>
<td>63,653</td>
<td>70,316</td>
<td>77,792</td>
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<td>Gain (loss): sale of assets</td>
<td>11,881</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Operating income</td>
<td>900,685</td>
<td>954,860</td>
<td>984,687</td>
<td>1,016,401</td>
<td>1,106,273</td>
<td>1,206,637</td>
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<tr>
<td>Other</td>
<td>85,844</td>
<td>71,361</td>
<td>86,962</td>
<td>90,317</td>
<td>86,287</td>
<td>90,379</td>
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<td>Income taxes</td>
<td>10,958</td>
<td>17,649</td>
<td>17,934</td>
<td>18,500</td>
<td>20,376</td>
<td>22,299</td>
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<td>Net income</td>
<td>803,983</td>
<td>865,849</td>
<td>879,791</td>
<td>907,584</td>
<td>999,810</td>
<td>1,093,959</td>
</tr>
</tbody>
</table>

*note: figures given in ‘000s USD

#### Balance Sheet

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash and cash equivalents</td>
<td>134,530</td>
<td>245,013</td>
<td>245,013</td>
<td>245,013</td>
<td>245,013</td>
<td>245,013</td>
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<tr>
<td>Accounts receivable, net</td>
<td>1,103,130</td>
<td>1,488,136</td>
<td>1,525,388</td>
<td>1,564,471</td>
<td>1,154,226</td>
<td>1,381,913</td>
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<tr>
<td>Affiliate receivables</td>
<td>9,185</td>
<td>16,092</td>
<td>88,572</td>
<td>16,092</td>
<td>16,092</td>
<td>16,092</td>
</tr>
<tr>
<td>Gas and NGLs in storage</td>
<td>188,286</td>
<td>209,886</td>
<td>209,886</td>
<td>209,886</td>
<td>209,886</td>
<td>209,886</td>
</tr>
<tr>
<td>Commodity imbalances</td>
<td>80,481</td>
<td>82,037</td>
<td>82,037</td>
<td>82,037</td>
<td>82,037</td>
<td>82,037</td>
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<tr>
<td>Other current assets</td>
<td>67,491</td>
<td>48,060</td>
<td>48,060</td>
<td>48,060</td>
<td>48,060</td>
<td>48,060</td>
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<tr>
<td>Total current assets</td>
<td>1,583,103</td>
<td>2,089,223</td>
<td>2,198,956</td>
<td>2,165,559</td>
<td>1,755,313</td>
<td>1,983,001</td>
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<tr>
<td>Property, plant &amp; equipment</td>
<td>10,755,048</td>
<td>12,120,989</td>
<td>13,741,816</td>
<td>15,666,599</td>
<td>17,175,441</td>
<td>18,947,461</td>
</tr>
<tr>
<td>Accumulated depreciation &amp; am.</td>
<td>1,652,648</td>
<td>2,171,539</td>
<td>2,466,358</td>
<td>2,860,988</td>
<td>3,150,265</td>
<td>3,490,820</td>
</tr>
<tr>
<td>Net property, plant &amp; equip.</td>
<td>9,102,400</td>
<td>9,949,449</td>
<td>11,255,458</td>
<td>12,805,612</td>
<td>14,025,185</td>
<td>15,456,641</td>
</tr>
<tr>
<td>Investments in affiliates</td>
<td>1,229,838</td>
<td>1,238,675</td>
<td>1,247,624</td>
<td>1,256,886</td>
<td>1,256,864</td>
<td>1,257,157</td>
</tr>
<tr>
<td>Goodwill &amp; intangible assets</td>
<td>832,180</td>
<td>822,770</td>
<td>813,619</td>
<td>804,717</td>
<td>796,060</td>
<td>787,640</td>
</tr>
<tr>
<td>Other assets</td>
<td>115,087</td>
<td>120,640</td>
<td>126,461</td>
<td>132,562</td>
<td>138,959</td>
<td>145,663</td>
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<tr>
<td>Total invest &amp; other assets</td>
<td>2,177,105</td>
<td>2,182,085</td>
<td>2,187,703</td>
<td>2,193,966</td>
<td>2,200,882</td>
<td>2,208,461</td>
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<tr>
<td>Total Assets</td>
<td>12,682,608</td>
<td>14,220,758</td>
<td>15,642,117</td>
<td>17,165,136</td>
<td>17,981,381</td>
<td>19,648,103</td>
</tr>
<tr>
<td>Current maturities long-term debt</td>
<td>7,650</td>
<td>7,650</td>
<td>7,650</td>
<td>1,107,650</td>
<td>407,650</td>
<td>432,650</td>
</tr>
<tr>
<td>Notes payable</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Accounts payable</td>
<td>1,225,411</td>
<td>1,302,809</td>
<td>1,333,484</td>
<td>1,365,533</td>
<td>1,516,461</td>
<td>1,668,115</td>
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<td>Affiliate payables</td>
<td>47,458</td>
<td>44,735</td>
<td>45,788</td>
<td>46,889</td>
<td>52,071</td>
<td>57,897</td>
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<td>Commodity imbalance</td>
<td>213,577</td>
<td>252,095</td>
<td>252,095</td>
<td>252,095</td>
<td>252,095</td>
<td>252,095</td>
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<tr>
<td>Other current liabilities</td>
<td>181,922</td>
<td>136,664</td>
<td>136,664</td>
<td>136,664</td>
<td>136,664</td>
<td>136,664</td>
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<td>Accrued interest</td>
<td>92,711</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Derivative financial instruments</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Long-term debt, excl. current mat</td>
<td>6,044,867</td>
<td>7,329,019</td>
<td>8,652,041</td>
<td>8,213,157</td>
<td>7,815,512</td>
<td>7,884,100</td>
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<tr>
<td>Deferred credits &amp; other liabilities</td>
<td>113,027</td>
<td>113,027</td>
<td>113,027</td>
<td>113,027</td>
<td>137,261</td>
<td>166,692</td>
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<tr>
<td>Total Liabilities</td>
<td>7,956,623</td>
<td>9,185,998</td>
<td>10,540,749</td>
<td>11,235,015</td>
<td>10,317,715</td>
<td>10,616,213</td>
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<tr>
<td>Equity</td>
<td>4,998,696</td>
<td>5,034,760</td>
<td>5,101,368</td>
<td>5,930,121</td>
<td>7,663,666</td>
<td>9,031,890</td>
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<tr>
<td>Total Liabilities &amp; Equity</td>
<td>12,802,608</td>
<td>14,220,758</td>
<td>15,642,118</td>
<td>17,165,136</td>
<td>17,981,381</td>
<td>19,648,103</td>
</tr>
</tbody>
</table>

*note: figures given in ‘000s USD
Appendix ii

WACC

In our model, the weighted average cost of capital (WACC) was calculated for each segment individually as well as an overall WACC to be used in the “Other” segment. For each segment, we intended to calculate the relevant debt-to-equity ratio for each particular segment by using the debt-to-equity ratios from other companies that operate solely in that segment, if possible. For the G&P segment, we used Boardwalk Pipeline Partners (BWP)’s debt-to-equity ratio of 1.23. For the cost of debt, we used the company’s credit rating (BBB-) was used to find the 10-year fair market value, the default rate, and the recovery rate of their debt. For the cost of equity, the 10-year U.S. government zero coupon bonds were used as the risk-free rate along with the company’s beta and a market risk premium of 5% to find a cost of equity in this case of 3.79%. The proportion of capital was divided using the debt-to-equity ratio to determine the contribution of each source of capital to the overall cost of capital. We assumed that the marginal tax rate was 0% as, OKS, as a master limited partnership, is exempt from paying federal income taxes. This method was used on the other three segments, Pipelines, NGLs, and Other. In the pipelines segment, TC Pipelines (TCP) was used as a proxy company. In the NGLs segment, Targa Resources Partners (NGLS) was used as a proxy company. In the Other segment, OKS’s debt-to-equity ratio and credit rating were used to calculate the WACC.

<table>
<thead>
<tr>
<th>Segment</th>
<th>Source of Capital</th>
<th>Proportion of Capital</th>
<th>Cost of Capital</th>
<th>Marginal Tax Rate</th>
<th>Contribution to Weighted Average WACC</th>
</tr>
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<tbody>
<tr>
<td>G&amp;P</td>
<td>Debt</td>
<td>0.55</td>
<td>3.00%</td>
<td>0%</td>
<td>1.66%</td>
</tr>
<tr>
<td></td>
<td>Equity</td>
<td>0.45</td>
<td>3.79%</td>
<td></td>
<td>1.70%</td>
</tr>
<tr>
<td>Pipeline</td>
<td>Debt</td>
<td>0.38</td>
<td>3.00%</td>
<td>0%</td>
<td>1.15%</td>
</tr>
<tr>
<td></td>
<td>Equity</td>
<td>0.62</td>
<td>5.38%</td>
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<td>3.31%</td>
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<tr>
<td>NGLs</td>
<td>Debt</td>
<td>0.33</td>
<td>3.51%</td>
<td>0%</td>
<td>1.16%</td>
</tr>
<tr>
<td></td>
<td>Equity</td>
<td>0.67</td>
<td>6.35%</td>
<td></td>
<td>4.42%</td>
</tr>
<tr>
<td>Other</td>
<td>Debt</td>
<td>0.26</td>
<td>3.21%</td>
<td>0%</td>
<td>0.82%</td>
</tr>
<tr>
<td></td>
<td>Equity</td>
<td>0.74</td>
<td>5.33%</td>
<td></td>
<td>3.96%</td>
</tr>
</tbody>
</table>

*note: figures given in '000s USD
Disclosures and Disclaimer

Research Recommendations

<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Buy</strong></td>
<td>Expected total return (including dividends) of more than 15% over a 12-month period.</td>
</tr>
<tr>
<td><strong>Hold</strong></td>
<td>Expected total return (including dividends) between 0% and 15% over a 12-month period.</td>
</tr>
<tr>
<td><strong>Sell</strong></td>
<td>Expected negative total return (including dividends) over a 12-month period.</td>
</tr>
</tbody>
</table>

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